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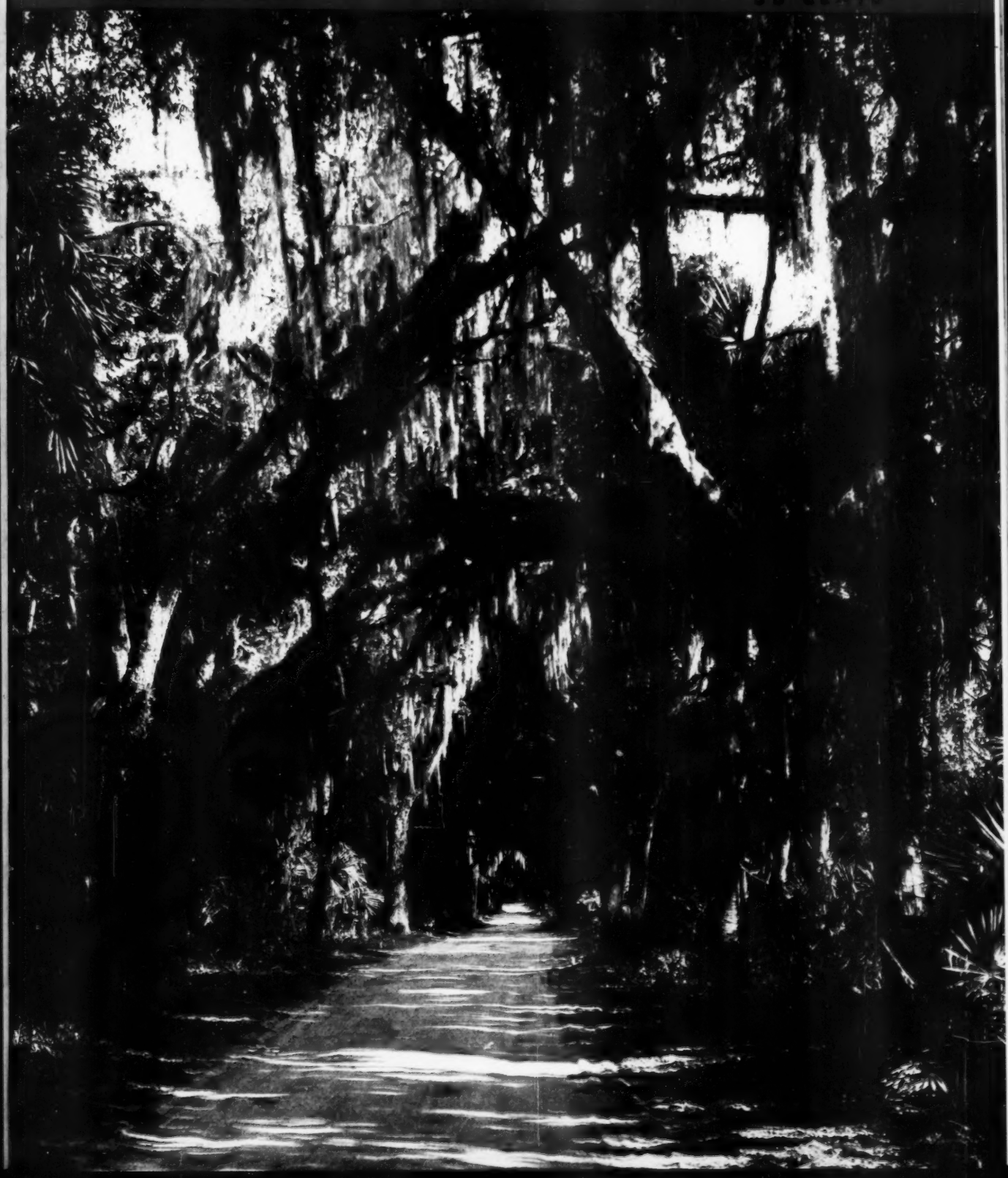

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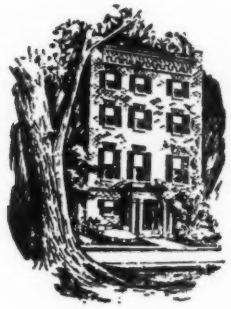
FEBRUARY, 1951
VOLUME 57
NUMBER 2

American FORESTS

PUBLISHED BY THE AMERICAN FORESTRY ASSOCIATION



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Cover . . . . . .

Along about this time of winter many people in northern climes have the urge to get away from snow-clad surroundings and bask in the warmth of the sunny South. A few fortunate folks actually fulfill this dream, it is said. During their travels, anywhere from Florida to Texas, they are quite likely to find trees decked with gray and eerie wisps of Spanish moss, such as the live oaks are on this month's cover. Few will realize the moss has any commercial value. It is in demand as a packing material, and when specially prepared, for upholstery. Botanists tell us it is not a real moss at all, but belongs to the pineapple family (Bromeliaceae).

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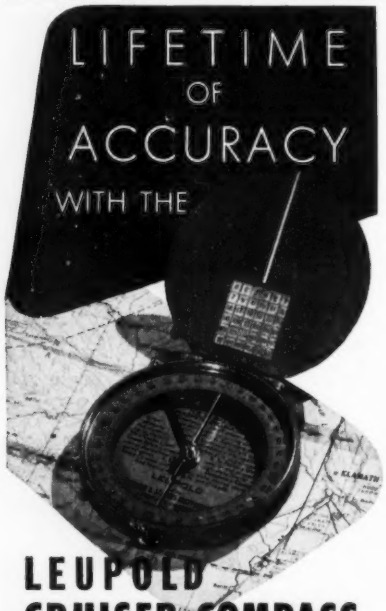
The American Forestry Association, publishers of *American Forests*, is a national organization—independent and non-political in character—for the advancement of intelligent management and use of forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is to create an enlightened public appreciation of these resources and the part they play in the social and economic life of the nation. Created in 1875, it is the oldest national forest conservation organization in America.

AMERICAN FORESTS is published monthly by The American Forestry Association at 919 Seventeenth Street, N. W., Washington 6, D. C. Subscription price $5 a year. The Editors are not responsible for loss or injury of manuscripts and photographs while in their possession or in transit. The Editors are not responsible for views expressed in signed articles. Entered as second-class matter at the Postoffice at Washington, D. C., under the Act of March 3, 1879. Acceptable for mailing at special rate of postage provided in Section 1103, Act of October 3, 1917, authorized July 10, 1918. Additional entry at Baltimore, Maryland, December 29, 1931. Copyright, 1951, by The American Forestry Association.



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American FORESTS **Forum**

In This Issue—A timely report and highlighted appraisal of forestry and conservation phases of the President's January 15 budget message features **G. H. Collingwood's** *Washington Lookout* this month (page 4). Working against a deadline, he has packed a lot of information into the limited space available.

Also timely is the lead article, *Do We Need Lumber Price Control?*, in which **A. Z. Nelson**, prominent consulting forester from New Ipswich, New Hampshire airs his views on a highly controversial issue of the day. Recent expressions from the White House hardly indicate an unhampered free enterprise course for industry during the national emergency, but at least some of the chaos created by restrictions during World War II might be avoided if officials heed the pitfalls pointed out in this article.

In *A New Look at Our Water Policy* (page 14), **Anthony Netboy** reports on findings of the President's Water Resources Policy Commission. Co-author of *Water, Land and People*, published by Alfred Knopf, Inc., Mr. Netboy is in an astute position to offer his appraisal of the findings.

Both those in the pulp industry and campaigners against pollution will want to read *A Burning Attack on Pollution* by **Lewis C. French**, of *The Milwaukee Journal* staff. If Wisconsin paper mills find they can economically burn sulphite waste as a fuel, others will rush to follow their lead.

Other authors in this issue are: **Robson Black** (*Canada Pioneers a Plan for Insect Control*), president emeritus of the Canadian Forestry Association and frequent contributor to these pages; **Dorothy K. French** (*Winter Picnicking*), from East Orange, New Jersey and a former newspaperwoman; **Weldon D. Woodson** (*Trees Made Palm Springs*), a naturalist-writer from Los Angeles; **Lucile L. Huntington** (*Bonsai, Dwarf Trees*), who writes from LaJolla, California; **Holger Lundbergh** (*Longer Life for Swedish Wood*), with the American-Swedish News Exchange of New York; **James Stevens** (*Davy Was A Poor Boy*), who harks back to the coming of the stork to bring us his second article in the Davy Crockett folklore series.

This month's editorial, *Education's Role in Resource Use*, is a guest contribution which **Dr. Paul B. Sears**, chairman of the Yale University Conservation Program, delivered at the recent 50th anniversary meeting of the Yale School of Forestry.

Our Readers Say—From A. C. Foley, forestry graduate of the University of Michigan in 1920 and now a hardwood lumber manufacturer at Paris, Illinois, comes this informative letter:

I was very much interested in the *Foresters, Fair* article by Dorothy M. Martin in the December issue. However, I would like to call attention to an oversight on page 36. It seems to me that the second girl forester graduate must have been Miss Allis F. Hussey, University of Michigan B.S.F. 1921, M.S.F. '22 and M.A. '28. Miss Hussey is now, I believe, a captain in the WAC, stationed in Japan. The writer was in school with Miss Hussey and she was an excellent student.

Apparently, Mr. Foley is right. However, before Miss Martin wrote her article she queried every accredited forestry school in compiling a list of girl graduates. Miss Hussey's name was not submitted, possibly through oversight.

H. O. Cook, chief forester for Massachusetts, writes from Boston:

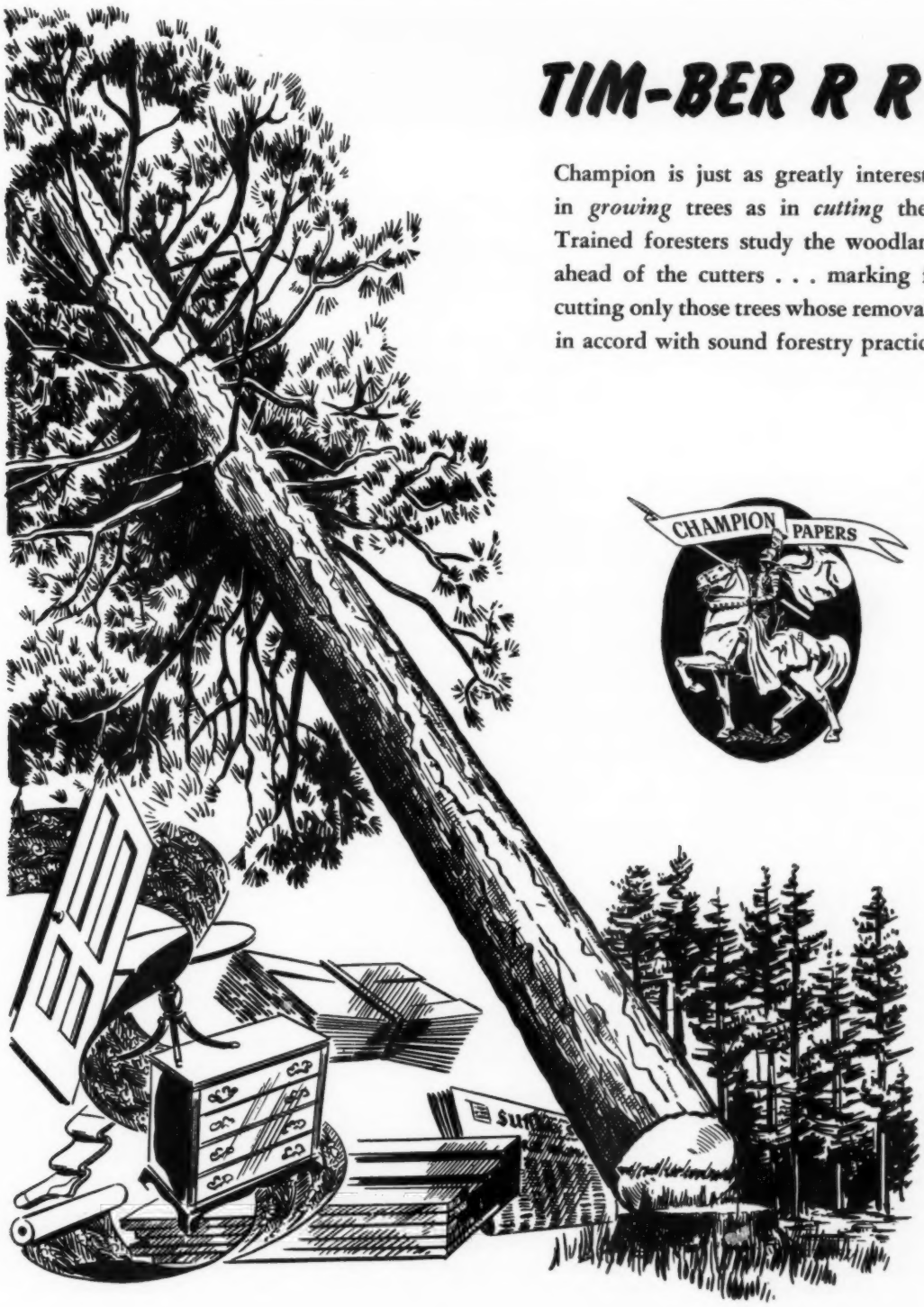
I was much interested in the article on *Harvest Time for Holly* by Nelson H. Fritz in the December issue. Mr. Fritz mentions the fact that the Pilgrims found holly growing in the woodlands of Plymouth Colony, but insinuates that if they were around today they would be unable to find it. While I must confess it is a rare tree in Massachusetts, it is by no means extinct. It can still be found deep in the swamps and remote woodlands of southeastern Massachusetts, where it has been hidden or protected from the vandals who despoil it when it is within easy reach of the public. On Cape Cod several interested people are propagating it for planting.

Mr. Fritz was referring to the commercial range of holly when he omitted Massachusetts and several other states from its present growing area. It is encouraging to learn of this in-

(*Turn to page* 5)

TIM-BER R R !

Champion is just as greatly interested in *growing* trees as in *cutting* them. Trained foresters study the woodlands ahead of the cutters . . . marking for cutting only those trees whose removal is in accord with sound forestry practices.



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WASHINGTON LOOKOUT

By G. H. COLLINGWOOD

The 82nd Congress, which convened on January 3, settled into a familiar grind of committee hearings after the President delivered his Budget Message on January 15. The following figures are selected from the details covering estimates for the expenditures of 71.6 billion dollars during the fiscal year beginning July 1, 1951:

BUDGET ESTIMATES

Bureau	*1950 (Actual)*	*1951 (Estimate)*	*1952 (Estimate)*
Forest Service	$70,975,789	$74,864,581	$86,474,554
Soil Conservation Service	54,743,729	56,203,832	55,018,000
National Park Service	39,203,063	39,131,128	28,850,603
Bureau of Land Management	13,412,554	23,228,837	29,397,350
Fish and Wildlife Service	27,704,534	28,274,763	29,394,000

The National Park Service and the Soil Conservation Service will suffer small decreases, but the increases to the other three major land management and conservation agencies are not enough to arouse excitement. The Forest Service increase of more than $11,600,000 consists largely of some $7,000,000 additional for roads and trails, bringing the total under this heading to $17,500,000.

For the second year, a more realistic pattern has displaced the long accepted custom of appropriating a token sum of $100,000 for fighting forest fires on national forests. The appropriation as recommended in the new budget is $6,000,000 of which $2,500,000 shall be apportioned only to the extent the Secretary, with the approval of the Bureau of the Budget, finds it necessary to meet emergency conditions. Thus, the custom of permitting "overdrafts" with which to meet expenditures for fighting fires on national forests, and later covering them with deficiency appropriations, is replaced with a more business-like procedure.

Another innovation is the combination of appropriations for cooperative forest fire control as authorized under the Clarke-McNary Act, with appropriations for farm forestry cooperation and more recently authorized sums for services and forest tree planting, under the single designation: "State and Private Forestry Cooperation." The total of $10,820,000 is $12,800 less than the estimate for the current year. It is broken down as follows: cooperation for forest fire control, $9,493,500; cooperation in forest tree planting, $442,061; cooperation in forest management and processing, $627,396; cooperation in farm forestry extension, $106,343; and general forestry assistance, $150,700.

During 1952 the National Park Service contemplates additional fire control services sufficient to raise the budget estimate from the current figure of $507,416 to $623,970. In fulfillment of this responsibility the Park Service protects over 6,500,000 acres of forest and 3,100,000 acres of brush and grassland.

Hearings before the several subcommittees of the House Committee on Appropriations started shortly after the President released his budget message. They will continue almost daily until the omnibus appropriations bill is ready for consideration by the House sometime in late February or early March.

Meanwhile, a large number of bills have been introduced since the opening of the 82nd Congress. In considering the more important of these, one dealing with timber access roads offers a most worthy contribution to the defense program.

Access Roads, H. J. Res. 60— Annual appropriations of $30,000,000 a year for five years, beginning with the current fiscal year ending June 30, 1951, are proposed in the timber access roads bill introduced January 4, by Representative Clair Engle, of California, and referred to the House Committee on Agriculture. This would be additional to any of the regularly appropriated funds for development of forest roads and trails. Of the total authorized amount, $25,000,000 would be allotted to the Department of Agriculture and $5,000,000 to the Department of the Interior. Thus, if enacted, the bill would provide means for getting out presently inaccessible timber on all national forest lands, as well as on the Oregon and California Revested Lands, in Oregon, and all other forest lands subject to public sale as administered by the Department of the Interior.

H. J. Res. 60 is similar to S. J. Res. 24, introduced during the 81st Congress by Senator Guy Cordon, of Oregon, and passed by the Senate on August 9, 1949. Senator Harry P. Cain, of Washington, however, had succeeded in obtaining an amendment which may have been responsible for failure of the bill to be approved by the House. The substance of the Cain amendment as now incorporated in H. J. Res. 60, requires the calling of public hearings to consider the practicability and feasibility of any access road construction or reconstruction estimated to cost more than $25,000. The Forest Service objects to this provision on the grounds that such hearings will unnecessarily delay construction of roads, and in the case of a national emergency can hamper the logging of timber needed for national defense.

Forest Fire—Additional appropriations of $5,300,000 would be authorized for distribution among the eleven states of the Forest Service southern region, by H. R. 442, introduced January 3, by Representative Lindley Beckworth of Texas, and referred to the House Committee on Agriculture. This is in the form of an amendment to the Clarke-McNary Act and would be in addition to the $9,493,000 recommended for appropriation in the current budget. It would be available for distribution only in those southern states where are located most of the 70 million acres of forest land now without protection.

Land Sales—Two Arkansas congressmen have introduced bills to permit the sale of lands presently owned and administered by the Department of Agriculture. H. R. 560, introduced by Representative Boyd Tackett on January 3, would authorize the Secretary to appraise and sell at public auction any lands in the Ouachita and Ozark national forests which are isolated parcels or narrow projecting strips, or which are better suited for commercial, agricultural, residential, or other private purposes. Sales would be by auction and limited to owners of contiguous land. H. R. 1060, introduced on January 9, by Representative Wilbur D. Mills, applies only to submarginal lands administered by the Soil Con-

servation Service. All sales would be made for cash with preference to veterans of the two world wars. Both bills were referred to the Committee on Agriculture.

Hoover Report—Bills covering the recommendations of the Hoover Report as directed to the Department of Agriculture and the Department of the Interior will be introduced early in the first session of the 82nd Congress, according to a recent announcement by the Citizens Committee for the Hoover Report. The recommendation to assemble all major soil, range and forest conservation agencies within a single Agricultural Resources Conservation Service, will probably result in two bills—one to transfer the Bureau of Land Management from the Department of Interior to Agriculture, and another would set up the organization whereby the functions of that agency could be combined with those of the Soil Conservation Service and the Forest Service, which are now in the Department of Agriculture.

Forum

(*From page* 2)

terest in perpetuating such a beautiful tree species.

C. S. Cowan, secretary-treasurer of the Washington State Forestry Conference, Seattle, writes:

Mr. Schwass has some doubts about reforestation on the Olympic Peninsula, doubts which are natural to those who see, but fail to observe. The same doubts have assailed even foresters, as the following experience will show:

In 1928 it was my duty to burn a particularly heavy slash area in the Western Olympics. Some six years later I met the forester in charge of that area and asked him if reproduction had started. He said no, he traveled that area at least once a week and had seen no sign. The upshot was we made a rough cruise. When this was completed we agreed that the burn was 100 percent stocked, although the seedlings had not yet pushed above the bracken. Today a vigorous stand, 50 to 60 feet in height, grows where there were no visible seedlings for those who "traveled" but did not stop to see.

While I do not know the specific location of the "shocking condition" seen by Mr. Schwass, I know that he is in error when he says "absolutely no attempt has been made by any agency, private or public, to reforest this area," for there are many thousands of acres which have been planted by both public and private agencies and still more which support a vigorous natural reproduction.

It is a pity that the urge to observe, to inquire and to know the facts is not as well developed as the urge to rush into print.

Plant small now!

and GROW YOUR OWN SPECIMENS with LITTLE COST, TIME or EFFORT

No need to use tiny seedlings, either. Plants just a little smaller than specimen sizes are a great deal cheaper to buy and safer to ship.

NATIVE RHODODENDRONS. Five different hardy, evergreen, flowering shrubs: **R. catawbiense** (purple, June); **R. carolinianum** (pink, May); **R. maximum** (white, July). Likes shade); **Mt. Laurel** (Kalmia) pink-white, May; **Leucothoe** (Andromeda) white, April.

Size: 12-15 inch, 1-stem plants

- 2 each kind, 10 plants $8.75 postpaid.
- 5 each, 25 plants $16 express not paid.
- 25 each, 125 plants $56 express.

Size: 12-15 inch, 4-6-stem clumps B & B

- 1 each kind, 5 plants $8.75 postpaid.
- 5 plants any one kind $7.25 postpaid.
- 5 each kind, 25 plants $29 express not paid (about $4 on arrival).

Size: 1½-2 ft., 4-6-stem clumps B & B

- Any five plants selected as you wish $15.75. (Express about $4).

HYBRID RHODODENDRONS. Named kinds on own roots—hardier, bushier, better. Your choice of varieties (list on request, or state colors desired).

Size: 1-yr. transplants, about 4-6 in.

- Any 8 plants, packed, $12.90. Express not paid (about $2 on arrival).

Size: 8-12 inch bushy, B & B

- Any 2 plants $8.50 postpaid.

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Size: 3-year XX, 4-10 inch, branched

- Any 5 of above plants $10 postpaid.
- 5 of any one kind for $9 postpaid.
- 50 plants (in tens) $65 (express).

OLDER EVERGREEN AZALEAS. Fine varieties: **Flame** (madder-red), **Hinodigirl** (scarlet), **Macrantha** (salmon-red, late), **Mary** (pink), **Kirishima** (white, red center).

Size: 10-15 inch bushy plants B & B

- Any five, selected as you wish, $22 (express about $3 on arrival).

Size: 2-year XX, about 4 in., branched

- Any 5 of above $5.50 postpaid.
- 5 of any one kind $4.75 postpaid.
- 50 plants (in tens) $25 (express).

HUGE HYBRID BLUEBERRIES. Assorted named varieties, large berries, fine flavor, correct for pollination:

Size: 18-24 inch, 3-year-olds

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XX (twice transplanted) bushy, 12-15 inches high, not B & B but with roots in damp packing moss. We ship thousands safely every spring.

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(If you order 100 total in three kinds you can use the 100 rates—a saving.)

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Hardy Mimosa (Albizzia rosea). Pink, July. 5-6 ft. plants $3.50, express not paid.

HOLLY GROUP. Hardy native evergreen small trees: red berries all winter.

Size 3-inch pot plants, about 8 in.

- 4 plants (3 best known females: **Howard, Arden, Lake-City** and 1 male for pollen) all for $6.50 postpaid.

CHINESE CHESTNUT. Sweet old-fashioned nuts on a small, blight-free tree. Extra healthy, vigorous, easily grown. Plant at least 3 for pollination.

Size: 2-3 feet transplanted

- 3 trees for $6 postpaid.
- 25 for $35 (express, not paid).

Size: 3-5 feet transplanted

- 3 for $7.50 (express about $1.).

Size: 6 to 8 feet transplanted

- 3 for $17.50 (express about $1.50).

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Do We Need Lumber Price Controls?

By A. Z. NELSON

Government price fixing within the lumber industry hasn't curbed inflation in war or peace, claims the author. Supply and demand is a better regulator

Wages paid labor in the woods have a major effect on production costs

TODAY each of us is faced with a fundamental change in our way of living. We are again being asked to make great sacrifices under a declared state of emergency. Although none will dispute the gravity of the times ahead, there exist honest differences as to how our economy should be girded for war. The writer believes that the least possible interference with established economic processes under our private enterprise system will provide the greatest benefits—but there are many who will disagree with this stand. So, for purposes of argument, let's consider the subject of price controls with particular reference to lumber.

The unhappy results of price manipulation in the first World War, and under the NRA Code, plus the almost disastrous experience under the OPA in the second World War, proved that mandatory lumber price controls would not work. But, again today, we are faced with government price fixing, and lumber may be high on the list to receive such treatment. Perhaps, by the time you read this the ceilings will be on.

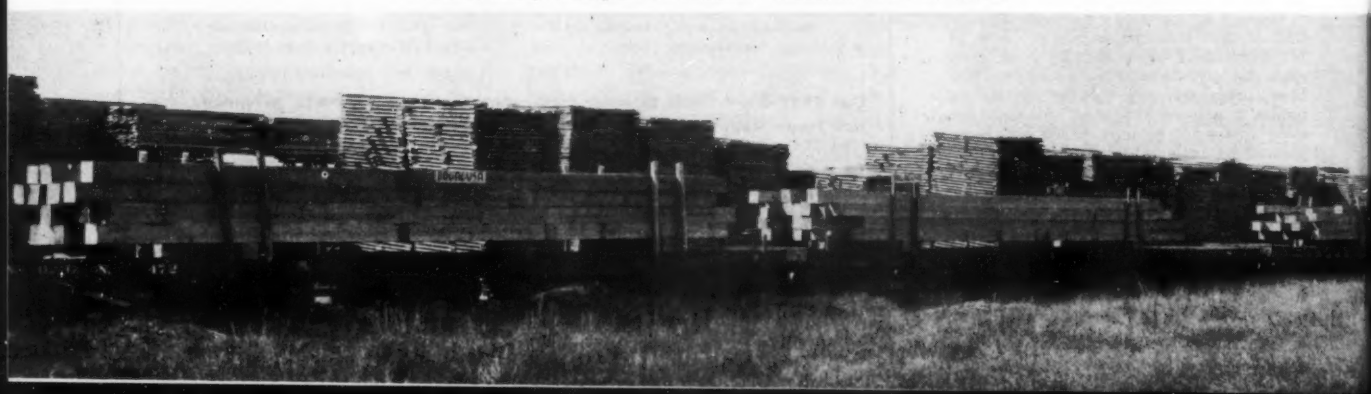
Advocates of price controls say we must stop inflation. Certainly we must stop inflation, but the arbitrary fixing of prices on lumber and other commodities is not the way to do it. The one thing we should have learned from the past is that price controls, no matter how well intentioned, hit at the symptoms of inflation and not at the causes. Something might be said in their favor if they really succeeded in stopping inflation—but they never do.

For years some of us have watched with apprehension many of the policies and programs of the government, feeling that inflation would result. Provisions of the Fair Labor Standards and Walsh-Healey Acts, recurrent and government-inspired demands for higher and higher wages by labor unions, price subsidies for agricultural products and other handouts, extremely easy credit, unprecedented expansion in the volume and velocity of money, artificially low interest rates, tax measures that stifle production, continued deficit financing and unbalanced budgets—these and other measures are the real causes of inflation as we know it today. They were created by the government—they can be cured by the government if it has a will to do so. Unless these basic causes of inflation are cured, the imposition of price controls will, in all probability, have the effect of gradually bringing our economic machine to a near halt.

The law of supply and demand is the best price regulator known to man. Even under today's conditions of government induced inflation, if this law is permitted to operate without restraint, production and consumption of lumber will continue in full balance, and prices will seek a level consistent with these economic forces. Compared with present-day costs of production and the currently inflated dollar, this price level will be rock bottom — the very objective price controllists envision but can never attain.

Our experience with lumber price controls under the OPA during and after World War II will never be forgotten. You will recall we also had the WPB, which was established to increase production. We thus had

A shortage of railway cars after the Korean invasion helped create heavy stockpiles of lumber. Situation has now eased

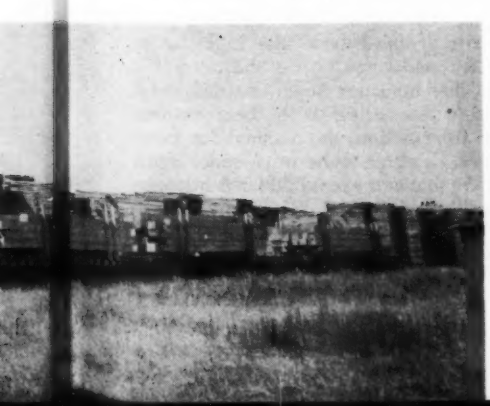


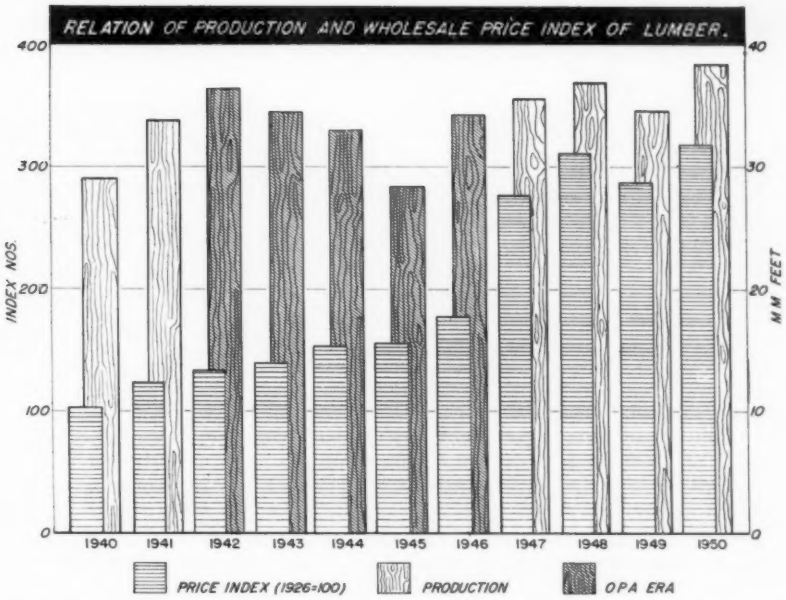
Costs of transportation, storage and selling also affect prices

the anomalous situation where one arm of the government (WPB) tried to increase production, while another arm (OPA) tried to control prices which curtailed production. Are we going to have this absurd situation again?

There was one thing the OPA did successfully— it discouraged all-out lumber production at a time when lumber was among our most critical commodities. Price control was, perhaps, the predominant factor that dropped lumber production from 36 billion board feet in 1942 to 28 billion feet in 1945. After OPA expired, production increased rapidly until in 1950 total production was about 38 billion board feet — the highest in 25 years. The accompanying chart shows the relation of lumber production to prices during the period 1940 to 1950.

The OPA found lumber to be one of the most difficult of all commodities to control. They found that lumber products were made up of literally thousands of individual items classified as to species, grade and form of manufacture. Instead of one overall price, they had to set thousands of prices. They found that the industry consisted of not a few plants as in the case of steel, but tens of thousands of plants, some large, but most of them small. Scattered all over the United States, these plants





The price index shown here fails to take into account that during operation of the OPA an increasing percentage of lumber produced was sold on the black market

had regional and local peculiarities with regard to production costs, such as availability of raw materials and manpower, wage differentials, methods of operation, kind of plant equipment, and so forth.

The cost of producing lumber, for example, may vary as much as $25 per thousand board feet among mills in the Douglasfir region of the Pacific Coast. So diverse were these factors that OPA was unable to establish prices which fairly reflected variations in production costs. OPA's cost studies, too, on which it based its price control decisions, were always out-of-date long before such decisions were reached. Although many price increases were granted by OPA, they were always too little and too late.

As clearly illustrated in World War II, it is inconsistent to control lumber prices unless log and stumpage prices are also controlled. In fact, control of lumber prices immediately dictates the need for the control of all cost elements that make up the price of lumber. This means that the wages paid labor in the woods and mills would have to be controlled; so would the cost of logging and mill equipment, including everything from tractors to band saws. And if the price to the consumer is truly to be maintained at a fairly constant level, so would costs of transportation, storage and selling.

But this isn't all. If operators find that under price controls it is more profitable to sell stumpage or logs to plywood plants, or for poles, piling or railroad ties, or even for pulpwood, they will naturally do so. Similarly, when demand for lumber is constant or increasing and the supply is short, all forms of substitutes appear in greater volume on the market, and usually at increased prices. So we see that lumber price controls immediately set off a chain reaction requiring the imposition of controls on alternative and substitute products as well as on the factors of production.

The operator who is caught in the squeeze between rising costs of production and fixed prices for lumber may find the going so tough that he is forced to shut down his operation. Long before this, however, he may consider (1) selling some or all of his lumber on the black market, or (2) selling inferior grades of lumber

THE VIEWS expressed here by A. Z. Nelson, prominent forestry consultant, are being published in the hope they may stimulate clear and objective thinking before unworkable and unwise controls are forced upon the vital lumber industry. Their publication is not intended as an unequivocal endorsement by American Forests. All will not agree with the author's opinions and conclusions, and perhaps readers will be moved to present dissenting viewpoints which will merit use in a future issue.

If under price controls, logs bring more for plywood or poles, lumbermen will go begging

at prices equivalent to the better grades, or (3) selling the better grades at high prices for inferior uses. It is a fact that during the life of the OPA many operators were able to stay in business only by resorting to one or more of these extreme measures. Price controls then may force the adoption of illegitimate or undesirable practices by operators in order for them to survive. In such circumstances, it is the little fellow with low cash reserves who is always the hardest hit.

But there is still more to the story. During OPA days the infliction of price controls on so vast and intricate a business as the lumber industry resulted in what might be termed "regulation chaos." Maximum price regulations were often very difficult to interpret, and it is a safe bet that there were for this reason as many violations by the innocent as by the wilful. It is contrary to human nature to obey the letter of the law or any implementing regulations lacking ready enforceability. Such were many of the OPA regulations affecting lumber.

The costs of price controls, both direct and indirect, were enormous. Twenty thousand government employees were required in Washington and in the field to administer the OPA. There were groups of industry representatives traveling to and from Washington continuously in an effort to keep controls on an even keel, and there were voluminous and never-ending reports required of the individual operators. Then there were disruptions in lumber production due to pricing problems and uncertainties. And finally, there were the losses sustained by those contractors, builders, retail yards and wholesalers willing to pay a high enough price to get lumber but unable to do so legally under the OPA.

Since the Korean invasion we have witnessed an almost unprecedented demand for lumber. Almost overnight nearly every contractor and builder in the country became panicky, fearing that if an all-out war developed he would be unable to obtain lumber. This vast upsurge of demand came at a time when most mills were already heavily loaded with orders — orders for the most part generated by the extremely easy credit policies of the government's housing program.

Coinciding with this spot demand was one of the worst shortages of box cars in history. Mills on the West Coast, unable to obtain rolling stock in anything like an adequate amount, were forced to stockpile lumber wherever a vacant lot could be found —some were even forced to shut down or run on a part-time basis. The shortage of cars was caused largely by demands of the armed services, and of the farmer for the movement of perishable crops.

At the same time several cargo ships used in transporting lumber from the West to the East Coast were commandeered by the armed services. Then labor strife shut down some of the largest mills in the country. Contractors and builders, with commitments staring them in the face, saw no solution but to offer premium prices in an effort to get a supply of lumber. One after another followed suit and the price of lumber, particularly for those items used in house construction, went up.

And so, lumber made the news dispatches. Some people, including a few government officials, began talking of the greedy lumberman, placing at his doorstep the blame for shortages and higher prices. If, as you read this, a lumber price control program has not been permanently established, it is certain it is being considered. So unless those who make the decisions can be convinced that lumber price controls are unnecessary and unworkable, this threat will become a reality.

The facts are convincing!

First, lumber prices have not only leveled off but appear generally to have stabilized. Two principal species, Douglasfir and southern pine have dropped from the highs of a few months ago.

The housing boom is definitely over. According to the best sources of information, the demand for nonfarm dwelling units in calendar year 1951 may not exceed 700,000 houses; in 1950 it was 1,375,000. Reasons cited for this predicted spectacular drop include: government tightening

of its credit policies; postponing or abandoning plans for new houses by many men of draft age and reservists facing imminent call into the proposed 3,500,000-man military. Then, too, shortages of other building and equipment materials, particularly steel, are modifying demand.

Significantly, the redemption of government war bonds during the past few months has substantially exceeded purchases, and it is thought that some of the money thus obtained is going into new housing. Since a major part of all lumber consumed goes into housing, a substantial decrease in lumber demand this year from this source is predicted.

What about defense needs? Needs of the defense establishment in 1951 will not be as great as the enormous demands during the first year of our participation in World War II. It is estimated that military requirements during calendar year 1950, both direct and indirect, were about five or six billion feet. This represents only about 12 to 14 percent of 1950's total lumber supply. Unless the catastrophe of another World War is forced upon us, it is unlikely that the military requirements in 1951 will exceed twice that of 1950. Such requirements can readily be satisfied.

To date, current demands of the armed services for lumber have been adequately met by the lumber industry, and the industry has said that it stands ready to meet future requirements, whatever they may be. It is believed that the production of lumber could be increased somewhat above recent high levels if critical conditions should develop, providing prices are permitted to reflect the supply-demand relationship. And no one can object to reasonable and necessary priorities and allocations to meet military requirements.

Railroad transportation, generally, is still a knotty problem, but with regard to lumber, the situation has eased up. Crops have been harvested and transported, cargo vessels are being taken out of mothballs, the railroads have placed additional orders for cars. Already lumber is moving rapidly from western mills to central and eastern markets.

On the labor front, there is basis for optimism. Wages in the woods and mills are generally on a par at least with other comparable industries, and in some sections of the country are higher, so there should be relatively little justifiable demand for repeated increases. Full employment is assured for the immediate future in most sections. There will be some loss of key personnel and skilled workers to the armed services and defense industries, but it is hoped this will not be serious enough to curtail production in any substantial degree.

With respect to timber supplies, the federal forestry agencies who control a third or more of the nation's sawtimber are making efforts to place greater volumes on the market. Here there is urgent need for intensification of such efforts so that privately owned timber stands will not be over-cut and the federal forests will be better managed from the standpoint of timber culture.

In the foregoing I have mentioned what I believe are some of the basic causes of inflation, I have stated why I believe price controls are unworkable, and I have given reasons why I believe they are unnecessary. But proponents of price control are sure to point out that, according to Bureau of Labor statistics, prices of lumber have risen more sharply than those of any other building material.

Part of the answer to this, insofar as the past few months are concerned, is found in the extraordinary supply and demand situation outlined above. Yet the proponents will say, "But the index of lumber prices has risen more rapidly than have the indexes of other building materials for a long period of time."

The answer here is found in the peculiar nature of the lumber industry, making it unique among all industries. First, when we consider the cost of lumber to the consumer it must be remembered that labor is the largest element making up that cost. And the lumber industry perhaps more than any other, has increased wages paid labor faster than the others. Second, logging and mill equipment represents a substantial part of the cost of lumber. Third, raw materials in the form of standing timber or stumpage is an important element of cost. These elements have been increasing at a relatively greater rate.

Of all industries the lumber industry is the most sensitive to fluctuation in price. A substantial percentage of the tens of thousands of mills that constitute its total productive potential is represented by the small and so-called "marginal" mills. They operate only when the price of lumber permits them to make a profit, and a drop of a few dollars in price may cause many of them to shut down overnight. In 1947, a good year, the small mills (those cutting less than one million feet per year) were responsible for about 26 per cent of total production; in 1936, a poor year, they cut only 12 percent. Most of them have operated at full capacity during past months.

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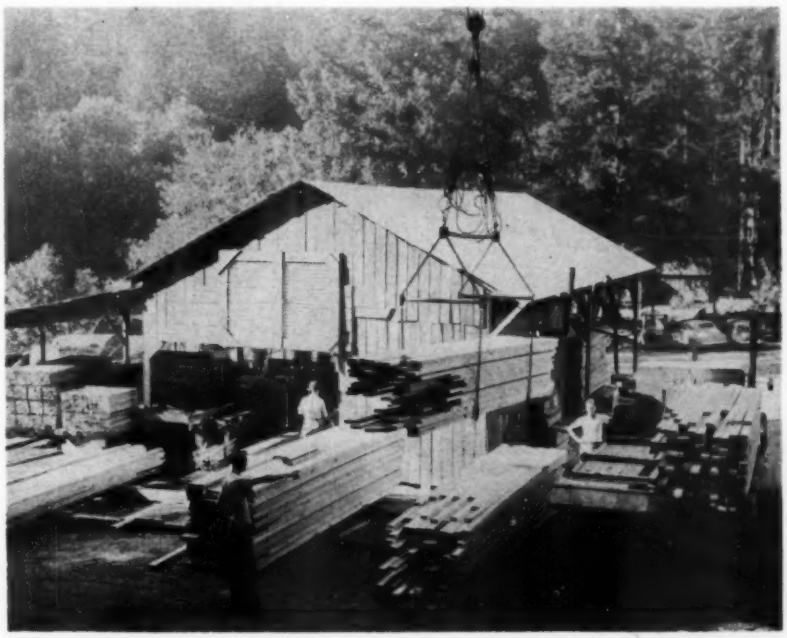
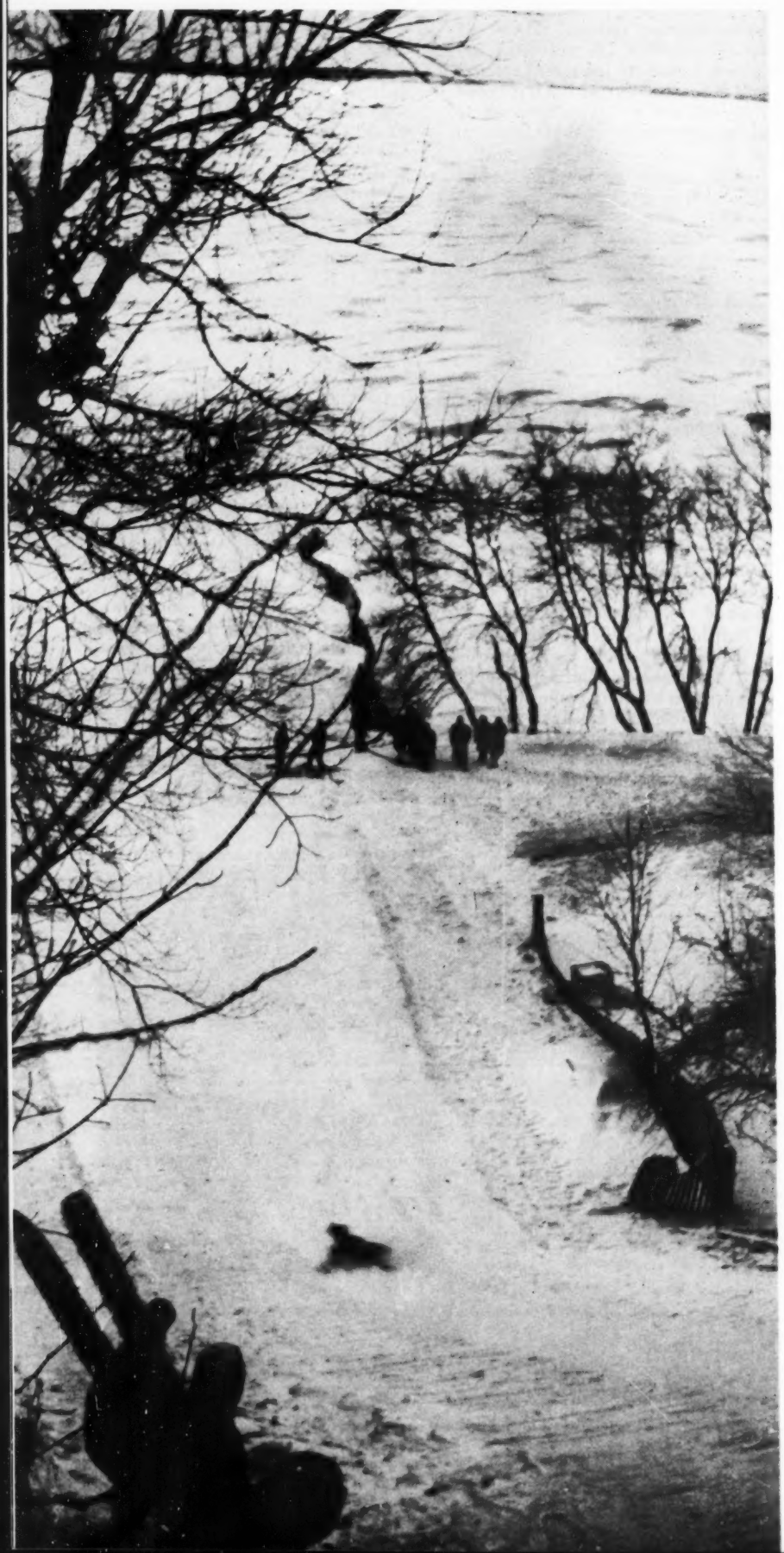


Will price controls force small sawmills like this to close?



Picnics in February can be as much fun as in July, but success depends on careful planning. Now here's what you do

By DOROTHY K. FRENCH

THE fun of picnics need not be limited to the season of mosquitoes, ants, and sunburn, because there are great opportunities for varied outdoor dinners and entertainment in winter. No scene is more peaceful and relaxing than a view of stately hills and quiet trees covered with glittering snow; no picnic is more memorable than a brisk one in beautiful surroundings.

The success of a winter picnic, however, depends on careful planning. Warm clothing is, of course, one of the first considerations. Clothes should be chosen for their ability to keep the picnicker dry as well as warm. Light garments that do not bind are best. It is wise to resemble an Eskimo on a trip to the Northern Lights; forget the advertise-

A tarpaulin and strong rod wedged in tree crotches form this lean-to

Winter Picnicking

ments on how outdoorsmen should look.

Food should be chosen for its heat and energy content, in order to perform its intended function of investing nature lovers with pep and warmth. And it must be wrapped well to prevent freezing. How different this is from the summer worry of retaining firm butter!

Modes of reaching the picnic destination are many. As a substitute for summer travel—canoeing or sailboating to favorite clearings across the lake—try iceboating or skating. Instead of cycling, you and your outdoor-loving friends might wish to rent a sleigh or a hayrack. Snowshoes and skis are other favorite means for northern athletes to get from place to place on snowy days. However, winter weather does not necessarily erect a barrier against hiking or driving by automobile.

Whether or not the car is used for human transportation, it is invaluable on the picnic day. Foresighted campers make a pre-outing pilgrimage to their destination where they hide wood in tree branches to keep it dry. Bulky equipment also can be transported in this way.

Picture yourself as one of a group of singing picnickers skating down a narrow river lined with snow-laden trees. You and your friends take turns dragging sleds loaded with picnic supplies, a wondrous moving system to people long before Hans Brinker saw a silver skate.

You glide up the river until you find a sheltered clearing, where you trade your skates for snow boots. You join friends in building a fire either directly on the ground or in an informal fireplace you fashion with a few flat stones. Perhaps knowledge of a permanent fireplace, complete with grill, had determined your picnic site.

If you did not provide for firewood beforehand, remember that wood under snow is not wet unless the snow is melting, and therefore fallen branches will burn in the wintertime. Finding material for the fire is easier than the old game of hide-and-seek; remembering Tom Sawyer and the whitewashed fence, you might talk your friends into a wood-gathering contest.

Seasoned picnickers may regard

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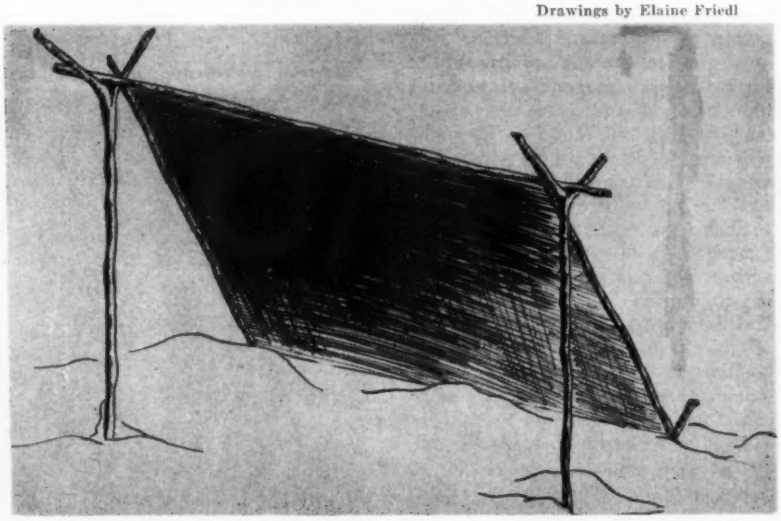
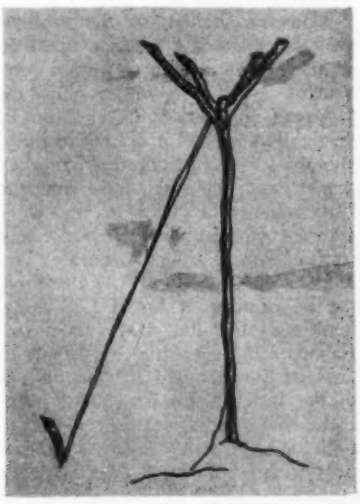
Forked stakes provide a substitute here for adjacent trees

Drawings by Elaine Friedl



Side view of a lean-to constructed with forked poles and a tarpaulin



Canada Pioneers a Plan for Forest Insect Control

By ROBSON BLACK

CANADA pays a woeful penalty to forest insects and disease, estimated at 500 million cubic feet of wood annually. Any attempt to limit such depredations introduces problems of enormous complexity, extending over long periods of time, and depending eventually upon the reorienting of traditional methods of forest management.

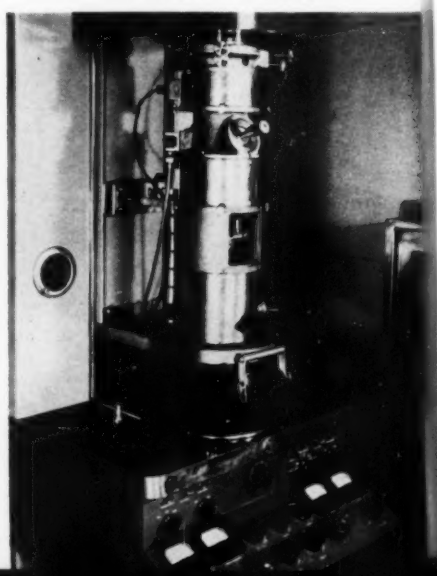
However challenging the problem may be, Canada's reliance upon an economy of continuous wood production offers no choice but the vigorous application of scientific investigation and control. As a major step in this direction, the Canadian Department of Agriculture and the Government of Ontario in 1944 entered into agreement to erect and staff a Forest Insect Laboratory at Sault Ste. Marie, Ontario. Later came the Laboratory of Insect Pathology, instituted by the Government of Canada, an extension of a special field earlier handled by the officers of the Insect Laboratory. All provinces share the scientific services of both labs through cooperative measures which, in effect, give the work at Sault Ste. Marie a national status.

Several years ago, the Department of Agriculture, Ottawa, and the Ontario Department of Lands and Forests initiated intensive surveys and investigations of forest insects, involving some 20 field establishments, the Forest Insect Laboratory acting as headquarters. These surveys now engage the services of 22 forest insect rangers, a varying number of laboratory workers, from ten to 20, plus cooperating field personnel in the employ of the provincial forestry department and wood using industries.

Each ranger makes his headquarters in a forest district where he gathers information and samples of the condition of the woodlands. He also is required to submit samples of the damaged trees and insect populations thereon, and to make detailed appraisals of injury in stands of particular interest, and to send in damage and infestation maps for the district as a whole.

The laboratory staff connected with the forest insect survey is charged with the analysis and recording of the samples, in order to obtain adult and these may number 7000 or more. Added to this is the task of rearing the immature insects, contained in the samples, in order to secure adult specimens for identification, and to obtain knowledge of the parasites

Electron microscope, new equipment



and diseases which attack them in nature. Reports on such work are sent out, sometimes monthly, to virtually all persons interested in forest welfare—government administrators, foresters and woods managers, and others concerned particularly with forest fire damage.

Equally important are the technical investigations, both at the laboratory and in the field, to determine the classification, behavior, and relationships of the insects, one to another, and to climate and forest environment. The largest single group of the technical staff is engaged in various ecological studies either at the main laboratory or in one of the four field stations.

The work of this group, comprising some 20 trained men, with a summer staff of approximately 25 student assistants, is concerned with investigations of genetics and cytology of forest insects, behavior and bioclimatology, population studies including effects of natural control factors, relation between insect attacks and characteristics of the forest stand, deterioration of timber through the effects of wood borers, the ecology of forest stands affected by insects, and other related fields bearing directly or indirectly on the understanding of the forest insect problems.

Unfortunately, vast areas of northern Ontario—and other provinces in like degree— are either inaccessible or operated only at long intervals, and any application of preventive or remedial measures in insect control is impractical. This situation, however, will improve as management is perfected and utilization extends its present boundaries. An encouraging sign is that at least three pulp and paper operators in Ontario have modified their immediate cutting schedules to accord with information furnished by the Forest Insect Laboratory.

Such cooperation by forest owners and industry is indeed one of the first essentials in the eventual reduction of insect damage. Laboratory officers have made this quite clear in stating the conditions upon which a reduction of losses is based: maintenance of surveys and investigations without interruption; a proper balance between industrialization and the productive capacity of the forest so that the yield of each acre is utilized; control measures to take care of outbreaks as they occur; salvage procedures to utilize timber killed in spite of precautions.

The spruce budworm may be cited as a specific illustration of the importance of forest operations in mitigating insect damage. This native pest has been responsible for costly outbreaks, increasing in frequency and destructive power. From the viewpoint of those at the Forest Insect Laboratory, this is to be attributed to the increased preponderance of balsam fir, which has been encouraged by earlier selective logging of pine and spruce and by permitting balsam fir to remain unutilized up to an age when it submits readily to insect depredation.

While balsam fir is widely distributed and in demand for use as pulpwood, it forms a prized diet for the spruce budworm. Once an infestation gets under way, it spreads to white and black spruce. Investigations now in progress lead to the tentative conclusion that balsam fir will encourage budworm outbreaks only when allowed to reach an age when flower production becomes heavy and frequent. Cropping at shorter cycles than the rotation age of the forest would thus seem to serve the aim of utilization and lessen the hazard from spruce budworm.

Canadian technicians have plan to combat spruce budworm infestations

The Laboratory of Insect Pathology, companion institution to the Forest Insect Laboratory, gives expression to the interest of scientists and the general public in control of insect pests by propagation and distribution of disease organisms. Propagation is not necessarily artificial, for viruses are multiplied in the bodies of living insects. Quantities

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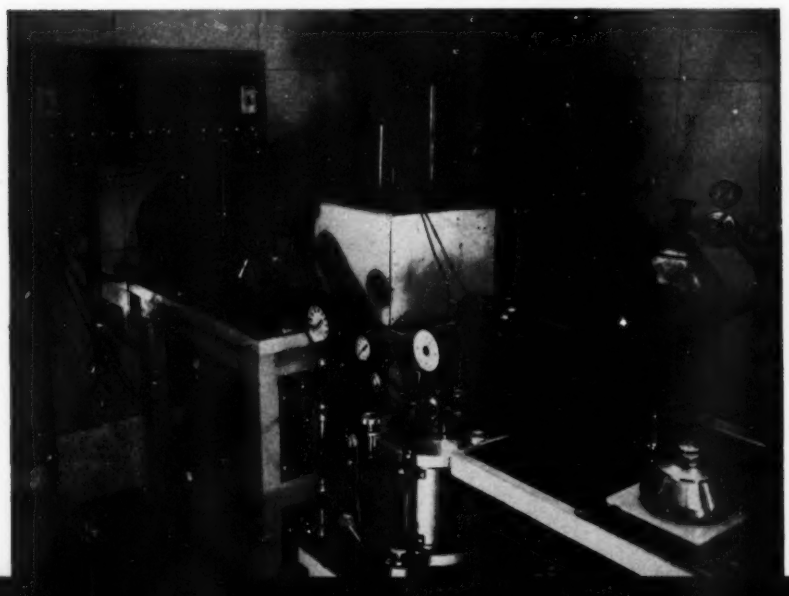
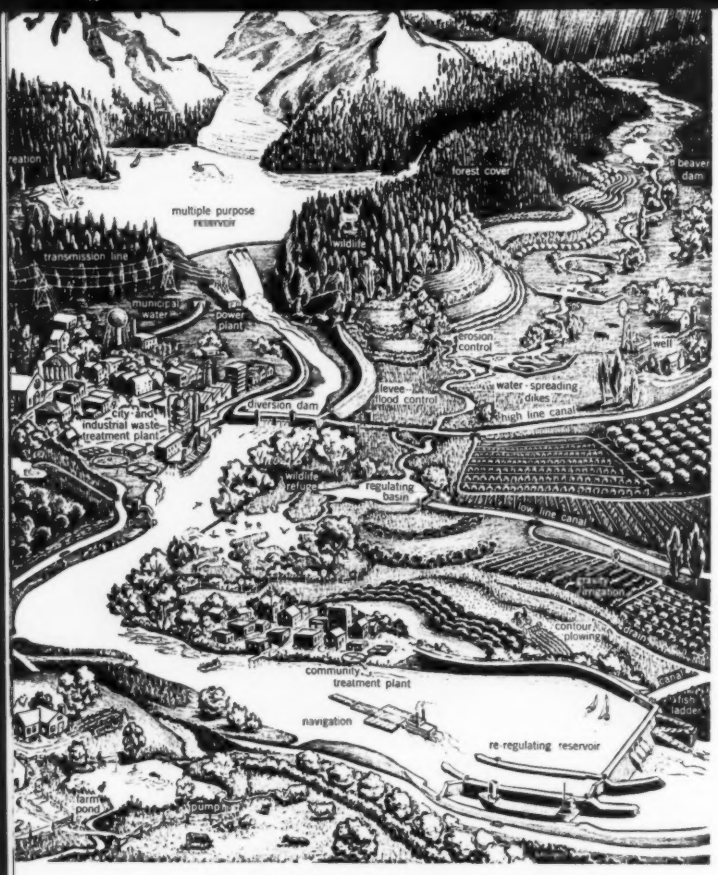
An ultra-centrifuge is another aid to technicians



Interior view of Biochemistry Lab



A multiple purpose river basin development

A New Look At Our Water Policies

We need unified river development, says the President's Water Resources Policy Commission. But will Congress "buy" it?

By ANTHONY NETBOY

THE President's Water Resources Policy Commission, appointed in January, 1950 with Morris L. Cooke as chairman, in its first report advises the nation: Abandon the single-river concept of water development and adopt the river-basin approach. The strength of this proclamation, already advanced repeatedly by leaders in the field, is that it is backed by a wealth of factual testimony citing the alarming state of our water resources, the floods and water shortages, loss of groundwater supplies, deterioration of our forests and steady diminution of soil fertility.

Entitled "A Water Policy for the American People," the 445-page report was made public December 17, with volumes two (an intensive study of ten rivers) and three (suggested federal legislation) scheduled for publication in February. The major finding of the Commission and the numerous experts it consulted is that the United States—especially the federal government—has been dealing with water problems in an irrational, piecemeal and wasteful manner. Instead of a co-ordinated federal policy, we have followed a patchwork of policies dictated by economic expediency, political pressures and bureaucratic lobbying in Congress.

The federal government alone has been spending over one billion dollars annually in recent years on water projects, with 12 billion dollars additional authorized for the years ahead, but how effective these huge outlays are in developing our water supplies, overcoming shortages, and retarding floods, the Commission does not say. Certainly, it is the feeling of some experts that despite such vast expenditures, we are not getting on top of these problems.

The Commission has therefore made it clear that we must reformulate our public works programs. It offers eight guiding principles:

1) We must have "clearly defined regional and national goals."
2) We must plan "for a river basin as a whole instead of having a patchwork of plans for separate purposes."
3) There must be "a simple procedure for determining whether the money to be invested in a river basin program will be well spent."
4) We need to develop "a system of repayment designed to treat alike all who will enjoy the advantages of federal investment."
5) We must place "the annual financing of water resources undertakings on a river basin program basis and . . . (recognize) the annual renewable resources investment program as a stabilizing factor in the economy."
6) We must provide "those who prepare the plans for the nation's river basin programs with all the knowledge which is required to assure good plans." (The Commission points out that too many plans have hitherto been prepared —and sold to Congress—on the basis of inadequate information about the resources of water and land, geological formations, climate, etc.)
7) We should apply "sound management principles to our watersheds, to the groundwaters which replenish our supplies, and to the floodwaters which, when harnessed, confer a host of blessings."
8) We must utilize "all these services which water resources offer in such a way as to contribute to the continued building of a strong nation."

On the basis of these guide-lines the Commission enunciates a policy for the American people which, while not new or revolutionary, has been consistently demanded by scientists, administrators and planners. In other words, "Congress should direct the responsible federal agencies to submit new proposals for water resources development . . . only in the form of . . . programs which deal with entire basins as units and which take into account all relevant purposes in water and land development."

Spelled out, this would mean that plans for developing the potential resources of a river basin—such as the Columbia—would take into consideration not only the need for downstream measures (dams to store flood waters, generate electricity, and provide water for irrigation, navigation, and other purposes) but upstream work such as reforestation, erosion control, retiring of overplowed and overgrazed land, etc. Up to now, no such unified approach has been in evidence in the United States —not even in the activities of TVA.

The Commission makes many suggestions for putting its policy into effect.

It believes that Congress should set up separate commissions, under the guidance of independent chairmen appointed by the President, for each major river basin—the Rio Grande, Colorado, Connecticut, etc.—"to coordinate the surveys, construction activities, and operations of the federal agencies."

A federal Board of Review, appointed by the President with the confirmation of the Senate, should pass upon the plans submitted by the various agencies in order to avoid conflicting programs and insure the soundness of the projects from the standpoint of national interest. The Board (also recommended by the Hoover Commission) presumably would have a national outlook and thus counter the sectional pressures that so frequently have dictated our public works programs in the past.

The Commission also recommends a sounder plan for financing water developments than has generally prevailed up to now. They should "be set up on a long-range basis, with each annual budget request therefore subdivided by river basins." This procedure should result in six-year river basin investment programs and in annual budgets that originate in the agencies, are coordinated by the river basin commissions, and reviewed by the federal Board of Review. The annual investment programs should be geared to the need for (1) maintaining the "nation's heritage of land and water resources," and (2) increasing national and regional productivity.

The Commission warns that "this is a time for action, based on sober consideration" of our objectives and methods. "Continuation of present policies, or lack of them, will mean a continuing waste of money and effort in the pursuit of conflicting goals." It recommends that projects now under construction should be completed as rapidly as the present emergency permits. But new projects should be conform with revised and approved river-basin plans, or are needed for the present emergency. The Commission suggests that we take a fresh look at all proposed basin programs not yet authorized by Congress and meanwhile push vigorously the collection of necessary data.

Although "A Water Policy for the American People" represents a milestone in American thinking about conservation of water and land resources, its fundamental suggestions have been stated before. The report on "The Development of the Rivers of the United States" submitted by representatives of various interested federal agencies in 1934 at the request of President Roosevelt, and the 1937 study by the Water Resources Committee of the National Resources Planning Board pointed up the same

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TREES
Made Palm Springs

Behind an adobe wall within this modern Baghdad lies the story of how an early pioneer created a shaded oasis in the desert

By WELDON D. WOODSON

MENTION of Palm Springs, California immediately brings to mind ultra-modern houses, chic shops, swank swimming pools, a golf course, polo field, tennis courts and all the other features that go with easy living. It's a desert community with a seasonal population averaging 10,000, and being only 107 miles east of Los Angeles it has become a favorite spot for Hollywood stars wishing relaxation between shooting schedules at movie studios.

Few notice, however, in the midst of all this glamor, a square block encircled by patched and crumbling adobe walls in the very heart of the business district. There, if you'll open a creaking, heavy plank gate, you can find the beginning of Palm Springs. In the garden surrounding what remains of the original Palm Springs Hotel is living testimony that trees made this modern-day Bagdad. There's a miniature jungle of vines, shrubs and trees — Guadalupe cypress, great magnolia, cottonwood, jacaranda, camphor, umbrella, citrus

Dr. Murray planted a jungle of trees around his hotel garden

Some of these trees should be spared in memory of Dr. Murray

and gnarly old fig trees, bamboo thickets and pampas grass.

To trace Palm Springs from its very dawn, one must go back to the Cahuilla Indians who first inhabited the Colorado Desert. In 1874, hardy Juan Bautista de Anza, explorer and soldier, became the first white man to set foot on this soil. A Lieutenant Williamson in an early government survey report writes of "two large springs in the bare plain not far from the mountain" where he encountered a group of friendly, agricultural Indians. At about the same time Professor William P. Blake, heading an exploration party for the Southern Pacific Railway, named the lowermost portion of that Colorado Desert region the "Imperial Valley."

John Guthrie McCallum and family are credited with being the first white settlers at what is now Palm Springs. Arriving there in 1884, he viewed with interest an Indian camp known as Agua Caliente and an Indian-owned spring of hot mineral water. He learned the government had partitioned the land in alternate sections—640 acres each—dividing them equally between the Agua Caliente tribe of Cahuilla Indians and the Southern Pacific Railroad. McCallum bought the latter's share of nearly 6,000 acres.

In 1888, a well-known desert character, Dr. Welwood Murray of nearby Banning, obtained from McCallum a parcel of land close to the Agua Caliente springs. For generations, Indian tribes had bathed in the foul-tasting waters and — so they vowed — cured an assortment of ailments. During the middle 1880's, white people began to flock here and take advantage of the medicinal values. Also, those afflicted with bronchial, tubercular and other troubles benefited from the locality's warm, sunny, dry climate. Since there were no eating or sleeping accommodations, Dr. Murray believed he could profit by establishing a hotel there.

In all probability the "Dr." was not university-earned, but came from the custom in small communities of attaching honorary titles to the names of distinguished citizens. A native of Edinburgh, Scotland — bearded, tall and lanky, dignified in bearing, and with a tell-tale Scottish burr in his speech — he was a prominent figure in Banning as early as 1877. Then, he was superintendent of the San Gorgonio Fluming Company, organized to cut and transport from the forests of the mountains to the north lumber, fuel and ties for the Southern Pacific, which had reached as far east as Cabezon in the San Gorgonio pass.

Following this business venture, he set up a small rest-house made of railroad ties near the narrow-gauge line which a San Francisco company had constructed to link with the Southern Pacific a new townsite. Called Palmdale, it was hoped this community would develop and assume an importance in desert life. This was slow to materialize, however, so Dr. Murray arranged to start the Palm Springs Hotel.

With the erection of the hotel — the historical old building that stands half-hidden in the center of today's Palm Springs — Dr. Murray had found his life's work. Assisting him was his Welsh wife, "Mom" Murray, who really made a go of the business with her excellent housekeeping and solicitous interest in the welfare of those who boarded and lodged there.

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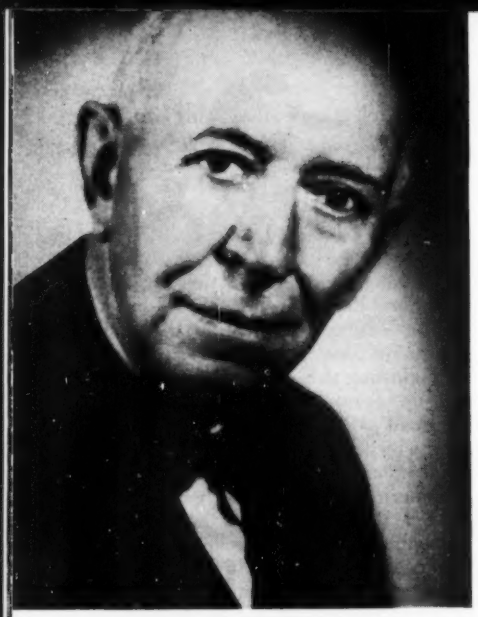
A corner of Palm Springs' first hotel, built in 1888. It has been long empty, may be torn down to make room for modern shops

New AFA Officers for 1951



D. C. Everest • President

D. C. Everest of Rothschild, Wisconsin, has been elected president of The American Forestry Association for the year 1951, succeeding A. C. Spurr of Fairmont, West Virginia, who served during 1949 and 1950. Mr. Everest is chairman of the board of Marathon Corporation.

Newly elected to the Board of Directors for three-year terms are Chester C. Davis of St. Louis, Missouri, president, Federal Reserve Bank of St. Louis, and newly named associate director of the multi-million dollar Ford Foundation; George W. Dean of Charlottesville, Virginia, state forester of Virginia; and Edward P. Stamm of Portland, Oregon, logging manager, Crown Zellerbach Corporation.

(*Word was received at press time that obligations with the Ford Foundation will not permit Chester C. Davis to serve on the AFA board. In accordance with Association By-Laws, the Board of Directors will fill the vacancy at their next meeting.*)

Re-elected were John M. Christie of Washington, D. C., assistant vice-president of the Riggs National Bank, treasurer for a one-year term; Samuel T. Dana of Ann Arbor, Michigan, dean, School of Natural Resources, University of Michigan, and George W. Merck of West Orange, New Jersey, president of Merck and Company, Inc., the latter two being retained as board members for three-year terms.

Twenty-one honorary vice-presidents were also elected for one-year terms: Honorable Sherman Adams, New Hampshire, governor of New Hampshire; Raymond J. Brown, New York, editor, *Outdoor Life;* Bryce C. Browning, Ohio, secretary-treasurer, Muskingum Watershed Conservancy District; Mrs. E. E. Byerrum, Illinois, chairman, Conservation Committee, General Federation of Women's Clubs; R. A. Colgan, Jr., District of Columbia, executive vice-president, National Lumber Manufacturers Association; E. J. Condon, Illinois, Sears, Roebuck and Company; L. A. Danse, Michigan, member, President's Water Pollution Control Advisory Board; J. N. Darling, Iowa, conservation cartoonist; Walter E. Disney, California, president, Walt Disney Productions, Limited.

Mrs. Malcolm J. Edgerton, New York, chairman, Conservation Committee, Garden Club of America; Charles F. Evans, Georgia, president, Society of American Foresters; Ira N. Gabrielson, District of Columbia, president, Wildlife Management Institute; Henry S. Graves, Connecticut, dean emeritus, Yale School of Forestry; Walter R. Humphrey, Texas, editor, *The Fort Worth Press;* Lee Muck, District of Columbia, Department of the Interior; A. C. Spurr, West Virginia, president, Monongahela Power Company; Paul E. Tilford, Ohio, executive secretary, National Arborist Association, Inc.; E. W. Tinker, New York, executive secretary, American Paper and Pulp Association; George C. Waldo, Connecticut, editor, *The Bridgeport Post and Telegram;* William P. Wharton, Massachusetts, president, National Parks Association.

All officers were elected by letter ballot of the Association's membership.

Before becoming chairman of the

(*Turn to page* 43)

Edward P. Stamm • Director

George W. Dean • Director

Bonsai, Dwarf Trees

By L. L. HUNTINGTON

Lee Nelson, with his collection of prize-winning dwarf trees

THE ancient Japanese art of *bônsai* (dwarf trees in a pot) is being carried on successfully in the United States today by Lee Nelson of San Diego.

Holding up a ten-inch tree planted in a pot, Lee Nelson casually introduces it as a hemlock 250 years old. "It took ten years to bring this one down from the mountains to sea level," he says.

Every year Nelson goes on a 5,000-mile trek to the Canadian Rockies, down into Mexico, then back up the Sierra Nevada to hunt small trees of considerable age that nature has stunted.

A hundred or more years ago a seed or cone was dropped into a mountain crevice. There was just enough soil for it to germinate, develop into a tree and keep alive. Although the tree never got a square meal, it survived because the rains and snows brought down enough moisture to keep it barely existing. There it clung, year on year, high up where man is unknown, until Lee Nelson scrambling across mountains spotted it as a "natural dwarf."

Immediately upon discovering a dwarf tree, Nelson starts the eight or ten-year trip down the mountain by loosening the dirt in the pocket and putting in a bit of extra dirt, thus disturbing the roots very little. The second year he climbs back up and cuts the taproot and wide spreading roots. The third year he sets the tree over to another place at the same altitude. The fourth year he puts the roots in burlap and takes the tree down a thousand feet. Each year it now goes down a thousand feet until it comes to sea level. Even then the tree can't stand the sea level climate of San Diego. Nelson then carries his trees into a canyon in southern Oregon, where for a time they can enjoy the cool weather and snow that they like.

At sea level the tree goes into the "nursing" stage, and for four more years Nelson trains the boughs into artistic shapes, prunes them, gives them interesting knots and twists, until he has one of his beautiful, prize-winning dwarf trees that are sought by wealthy gardeners all over the world. When trained and firmly established in its pot, the little tree will live another hundred years or so, and sells for from $2000 to $5000.

Don't these trees ever get a square meal? "Once a year I feed them," Nelson explains. "I grind up rape

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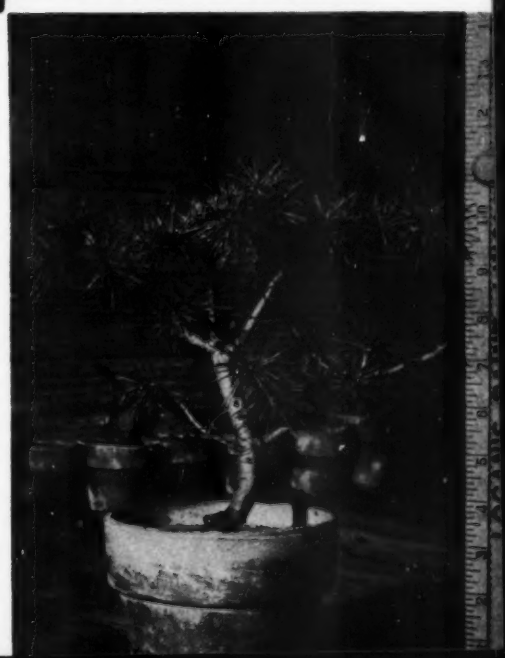
This tiny spruce is 100 years old



Longer Life for Swedish Wood

Sweden claims timber "salted" with this new solution will shrug off rot, insect attack

By HOLGER LUNDBERGH

A NEW and improved type of "Boliden Salt" for the impregnation of timber against rot and insect damage has been developed by the Boliden Mining Company in Sweden, originators of an effective arsenic mixture, which has been in practical use for the last fifteen years.

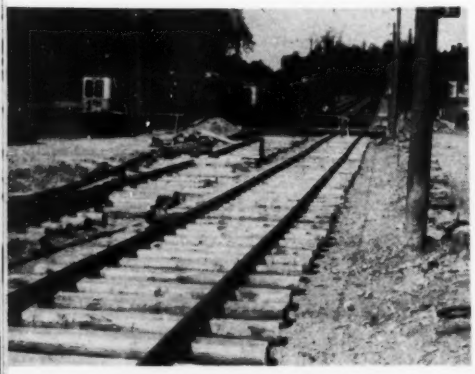
Production has now been started on an improved compound in which precipitation of the practically insoluble arsenates in the wood from cellulose reaction is not accompanied by formation of soluble natrium salts. The result is a higher degree of concentration than in the old "Boliden Salt." Better fixation of the same active substances means additional advantages, among them a very high resistance to electric conductivity. Since all components have been incorporated in the new product, no additional zinc sulphate is needed, thus simplifying the operation.

The urgency of effective wood preservation is revealed by the discovery that eight percent of all timber used is annually destroyed by fungus alone, resulting in enormous losses. In the United States, for instance, these losses are estimated at more than $250 million a year. In addition, damage done by wood-devouring insects on land and in water, such as beetles, white ants, and marine borers, is calculated at more than $50 million annually.

As early as in the 18th century, efforts were made to preserve wood by the use of chemicals. The results at first obtained were not satisfactory, chiefly owing to the absence of effective impregnation methods. The timber was merely painted or soaked in solutions of various chemicals, resulting in poor penetration and insignificant protection. Similarly, almost every conceivable chemical of moderate price was tried, with only a few proving of practical use.

No really effective treatment, however, was evolved until in the 19th century, when the vacuum and pressure methods were invented. The so-called "full cell" process involves placing the timber in a tank where a vacuum is created and the impregnating liquid is injected and forced into the wood by pressure. A variant of this treatment is the "empty cell" method, which requires a somewhat smaller quantity of liquid. Nowadays, these two methods are predominately used in wood preservation inasmuch as maximum penetration is assured, with no cracks escaping the prophylactic.

The technical problems connected with effective impregnation having thus been solved, scientists intensified their search for a really satisfactory chemical agent. Twenty years ago the Boliden Mining Company started research on the antimycotic and insecticidal properties of arsenic compounds. Continued laboratory tests gradually disclosed that a compound containing chromium, zinc, and arsenic in certain scientifically determined parts produced all the effect desired.



Swedish authorities insist upon impregnation of all railway ties

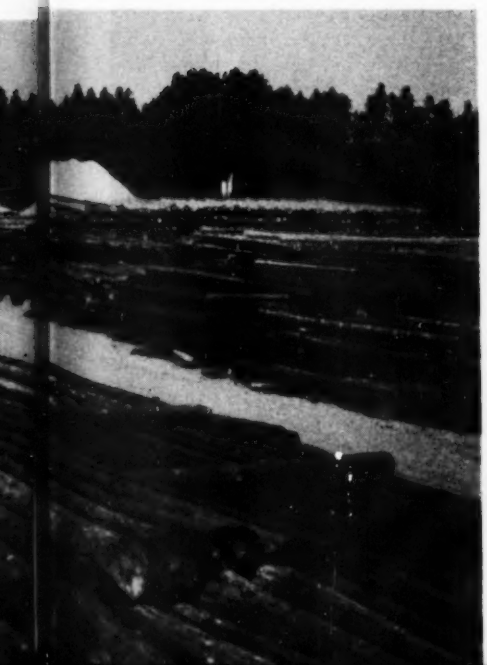
These poles and pilings await treating at a Boliden plant

Dissolved in water and forced into the wood by pressure, the chromium component of the solution combines with certain reducing agents in the cellulose structure to produce a reaction which accomplishes the purpose.

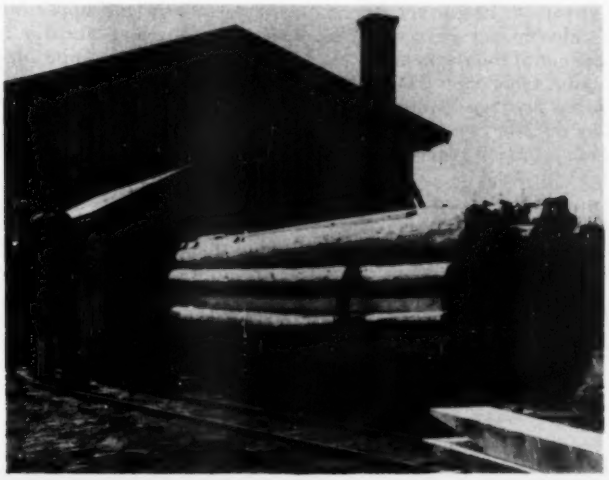
The Swedish pioneers in wood preservation are the Boliden Mining Company, large producers of a variety of minerals, including arsenic, and now marketing the compound in question under the popular name of "Boliden Salt." Government enterprises and public works administrations everywhere in Sweden, such as the state railways, and the telegraph and telephone board, port authorities, etc. now make impregnation a strict rule for sleepers, piles, poles, and other timber used in construction. The Swedish Board of Roads and Waterways makes impregnation a condition for outdoor construction. The first Boliden impregnation plant was established in 1935. There are now over fifty private units alone in Sweden, and nine abroad, while another ten plants are contracted for. The quantity of timber treated at Swedish installations in the past few years totals more than ten million cubic feet.

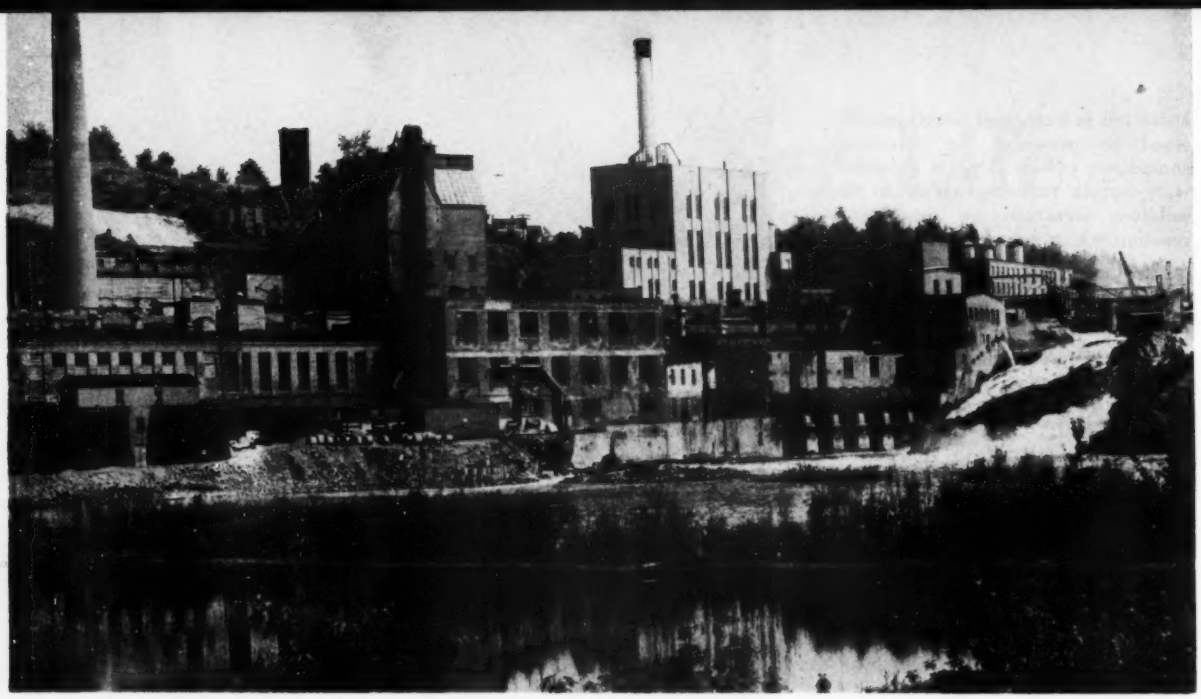
"Boliden Salt" has been subjected to numerous comparative tests over the whole world, both by official institutions as well as by the Boliden Mining Company itself. Extensive field tests against termites and decay prove that "Boliden Salt" impregnated wood has excellent durability under various and hard conditions. These experiences are expected to lead to a widespread use of "Boliden Salt" impregnation.

A Swedish floating chute, or man-made waterway of wood for long distance floating of logs. Such structures need treated timbers



There are now more than 50 such impregnating plants in Sweden. Their output of treated timber exceeds ten million cubic feet





Kimberly-Clark plant, Niagara, Wisconsin, scene of sulphite burning tests

A Burning Attack on Pollution

Wisconsin paper mills have shown they can convert spent sulphite liquor wastes into fuel. Now to pare the costs

By LEWIS C. FRENCH

SPENT sulphite liquor from paper mills—Wisconsin's number one source of industrial pollution—is turning out to be a "coal mine." The foul and smelly liquid that for years has been permitted to pour into the streams is now being tested as boiler plant fuel. And if the engineers can get the costs down, Wisconsin will have scored a double-barreled victory in its current stream pollution abatement drive—getting the sulphite out of the rivers and finding a plentiful fuel supply from what up to now has been sheer waste.

Paced by the Northern Paper Mills of Green Bay, five Wisconsin paper mills using the sulphite process are building storage equipment and evaporators, and they are refitting commercial boilers to spray the condensed sulphite into fire pits in place of coal. It works. Combustion engineers still must compute the economic costs as compared to coal, but trial runs prove the stuff will burn.

President Milan Boex of the Northern Paper Mills states his Wisconsin mill will spend $1,500,000 shifting over to the burning process in an effort to comply with state orders to stop dumping wastes into the lower Fox River. There are a dozen mills in Wisconsin and upper Michigan in various stages of blueprinting, testing or preparing to build the sulphite burning equipment. Others are standing by interested and watching, but not taking the "leap" until they are more certain of results in full scale operations.

The Northern Paper Mills has submitted its plans and specifications to the state sanitary and health engineers for approval—ready to proceed. Others having plans and specifications ready for approval include the Hoberg Paper Company, Green Bay; the Badger Paper Company, Peshtigo; and Rhinelander Paper Company, of Rhinelander, which has both the yeast and burning process in its program. Then there is the Kimberly-Clark Corporation of Menasha which has even put its Niagara (Wisconsin) mill successfully through the burning test.

Considerable thought, time, energy and five million dollars or more have been expended in this Wisconsin effort to keep sulphite out of surface waters—and so far the best answer seems to be: Burn the stuff. For years the Badger state watched the slow, continuous deterioration of its many rivers and lakes. Having rivers and lakes in abundance, including Lakes Superior and Michigan and the mighty Mississippi on its borders, no one seriously worried about clean waters—that is, until recent years.

Originally stream laws were founded on rivers and lakes being

used by loggers— the basic law being that any stream capable of floating a log should be protected as a navigable river. With the passing of the big pine and the camp sawmills there came the economic switchover to paper mills and pulping. And from that change came clogging of many famous rivers; even stretches of Lake Michigan were polluted, especially where the historic Fox empties into Green Bay.

The rivers of Wisconsin in recent years have been called upon to carry all kinds of pollution. There are the foul and toxic wastes from muncipal sewage. There is the fiber from kraft mills, which scums up the banks and bottoms. For long years dairy plants dotting the state have been pouring whey from cheese vats, residue from butter churns and tons of wash water into the rivers. Even more tons of brewery wastes are present.

There is evidence before the new state water pollution committee that chemicals strong enough to eat the scale off boiler pipes of lake ships were poured right into the rivers and lake port harbor waters—and people wondered why their rivers, lakes and even Lake Michigan beaches were being condemned.

Get it straight; this Wisconsin stream pollution problem is statewide, not isolated. Nor are the paper mills the only "defendant." But the evidence is that where sulphite liquor in large amounts has been dumped into the rivers, the damage is critical so far as normal values of the stream are concerned. Adding to the problem is the ever increasing demand for clean and usable water.

Potato growers of the Langlade flats of central Wisconsin and the Wisconsin Rapids cranberry growers found that clean water boosted their crops, so they reached for irrigation waters—clean water. In the old days the farmer growing 100 bushels of potatoes an acre was considered a marvel. The state average was 85 bushels. Now specialized growers with miles of portable irrigation pipe and pumps make their own moisture conditions and think it almost a crop failure if they don't get a carload an acre—350 to 500 bushels—even as high as 1103 over in Delta County in Michigan. The Milwaukee brewers dug their wells deeper for more clean water than ever before. Every industry using water wanted more and more.

As a result, Wisconsin was awakened to the realization that even with all its rivers and lakes, there was a limit to usable waters available within the state. The issue came up sharply at the last session of the legislature. Certainly Wisconsin had anti-pollution laws, both civil and criminal. But scant heed was paid to them except when some game warden caught a cheese maker dumping whey and killing fish—a fine for each fish killed.

The tub thumping Izaak Walton League went to bat. So did the sportsmen, seeking stiffer anti-pollution laws. On one side were conservation groups who demanded a return of crystal clear waters as a heritage to future generations and general public welfare, sports and recreation. Equally determined, mill owners lined up with powerful Wisconsin dairy interests opposing such stern measures, termed impossible and impractical: "We'll close down —move out."

Right between the two feuding forces were the everyday citizens—those who like to fish a bit, though not wanting to stifle industry. They saw the issue of water pollution mainly from the standpoint of the importance of clean water in their everyday living—safe water from their faucets. A river to them should not be made an "open sewer." These people won.

Two years ago the Wisconsin legislature reframed stream pollution laws. The law makers set up a five-man state committee to enforce the

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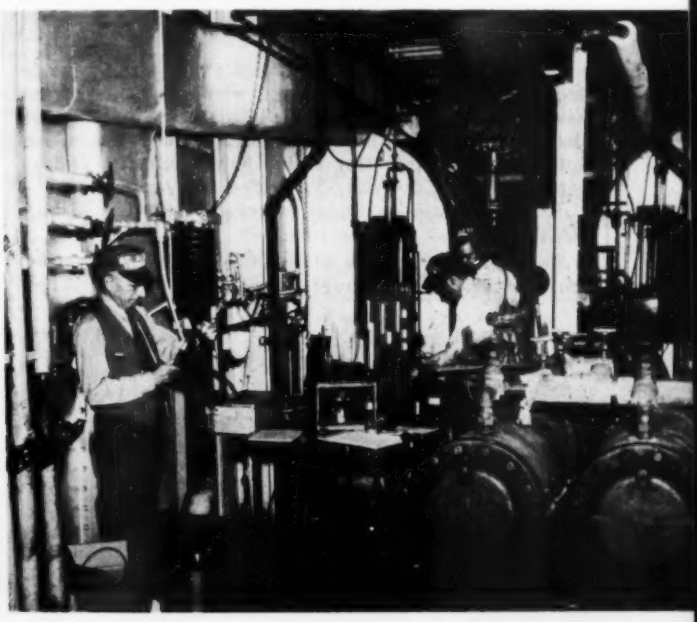
Officials and technicians watch burning of concentrated sulphite liquor in Niagara mill boilers, left. Running tests on spent liquors for fuel during burning run, right



Explore Lookout Mountain, Tennessee By Horseback In April And May April 20-22 or May 11-13

To meet the demand of many of our members for an eastern horseback trip without overnight camping, The American Forestry Association has selected the historic Lookout Mountain region, Chattanooga, Tennessee, as the scene of its first week-end vacation venture. Two trips are being arranged for the dates of April 20 through the 22nd, and May 11 through the 13th. The parties will be limited to around ten riders each. Headquarters will be the PanOram Hotel, located on Lookout Mountain and overlooking the city of Chattanooga and the Tennessee River Valley. The hotel boasts a wonderful view from its broad terrace and the all-glass dining room, where excellent meals are served.

Riders will be met at the railroad stations and airports and transported to the PanOram, where accommodations have been arranged for and included in the full cost of the ride. Arrival and departure times at the PanOram are optional. Riders may stay at the hotel Thursday,-Friday-Saturday nights, or Friday-Saturday-Sunday nights.

The trips begin on Friday morning between 9:30 and 10:00 o'clock.

An interesting feature of the trip will be an evening cruise on Lake Chickamauga, as the guests of Ed Hays of Chattanoogans, Incorporated. Dinner will be served "at sea." Mr. Hays is a gracious host and his cruiser is very comfortable. This occasion will give the riders an opportunity to see another attractive facet of this area and to become acquainted with each other.

The complete cost of the trip, including 3 nights lodging, 9 meals, horse and saddle, and guides, is $75.

A representative of The American Forestry Association will be in charge of the trip, and will be at the PanOram to greet the riders upon arrival. Accompanying the party, also, will be a representative of the Chickamauga-Chattanooga National Military Park, through which most of the ride takes place. Mr. John A. Chambliss, a prominent attorney in Chattanooga will furnish excellent riding stock from his stable and will accompany the parties. He is an enthusiastic advocate for all that the Lookout Mountain region offers for outdoor recreation in a country which has a certain "wildness" about it, although it is actually situated in the "heart of civilization." The itinerary on the opposite page will give you a preview of the features of this region in which you will have an opportunity to enjoy riding as you like it—plain or fancy. (Adv.)

Itinerary:—LOOKOUT MOUNTAIN

BRIDLE PATH TRIP

FIRST DAY

Arrival—If convenient, guests should plan to arrive early Friday morning. Transportation will be provided from railroad stations and airports to PanOram Hotel where party will assemble.

Breakfast—8:00 to 9:30, PanOram Hotel. After guests have been installed in rooms and are through with breakfast, a guide will take them to riding stables of Mr. John A. Chambliss.

Trail Ride—The first day's ride will confine itself to the lower trails. Riding will be easy, elevations slight. During the morning hours riders will depart on Indian Trail, then will traverse Boundary Trail, Candy Trail—(named for Colonel Charles Candy who led his troops along this trail during the Civil War), Creek Trail to Skyuka.

On these trails as on all subsequent trails, riders will encounter a profusion of wild flowers and will see many unusual species of trees. The unique rock formations that the riders will encounter through their stay in this area hold more than passing interest for the naturalist and student of geology.

Portions of Lookout Mountain Battlefields are traversed on the morning's ride; at which point southern gun emplacements are easily discernible; an unusual view of Raccoon Mountain and other interesting vistas are to be enjoyed; several unusual limestone and sandstone formations are also visible. On this phase the riders will come upon confederate breastworks and fortifications. Along the Creek Trail is the "Narrows," where Indians constructed fish traps. This section also abounds in maidenhair fern, wild flowers and fine beech trees. The view of Judith Bluff, rising some 1500 feet above the riders is awe inspiring. The riders approach Skyuka through "savannas," broad meadows which offer interesting contrasts to the more rugged terrain above.

Luncheon—Luncheon prepared at PanOram Hotel, will be spread at Skyuka—a large spring of singular beauty where Civil War soldiers and the Indians before them quenched their thirst and watered their mounts.

Afternoon—Following luncheon, the riders will continue along Creek Trail approximately 3½ miles to Blue Hole. This is another sizable spring where the riders back-track to Skyuka and then return to the stables by Skyuka Trail, an interesting path that is heavily wooded and frequently offers new vistas of the surrounding mountains.

The riders will arrive at the stable at approximately 4:30 and will have covered a distance of about 20 miles. Transportation will be provided back to the PanOram Hotel.

Dinner—Guests will be taken for an evening cruise on Lake Chickamauga aboard a luxurious cruiser. Dinner will be served on the cruise, and this informal affair will give the party an opportunity to get better acquainted with one another.

SECOND DAY

Breakfast—8:00 to 9:30, PanOram Hotel. Morning Ride—Riders will start out on Creek Road where they will pass the site of Lights Mill. This was the point where the Union Army crossed the creek with 3500 men to form for the Battle Above the Clouds. The old mill stones are still in evidence. The riders continue on Lights Mill Trail for 3 miles, rising some 650 feet. This is a highly scenic trail that has a great deal of Civil War background. They will traverse Guild's Trail which is along an old railroad right-of-way and goes through the heart of the battlefield, ending up at Craven's Terrace. This is the famous "shelf" about half way up Lookout Mountain where the "Battle Above the Clouds" ended. Many monuments and interesting plaques here. Riders will go along Craven's Terrace, passing Battle Field Rock, to the foot of Lookout Mountain palisades, then along the palisades to the foot of Sunset Rock. Here they will dismount and climb atop Sunset Rock for luncheon. The view from here is unsurpassed.

Afternoon—Following luncheon—the riders will continue south along the Bluff, passing Precipice Pass, Giants Niche, Devil's Den, Stone Gate, Sentinel Rock, Coal Springs (a miniature coal mine), Judith's Bluff, and then down the switchback along the Undercliff Trail where the hanging gardens are in evidence. Portions of these particular trails border sizeable drops and some riders will prefer to lead their horses for a short distance. Continuing, the riders will descend to Fire Truck Trail some 700 feet above the valley and go on down to Skyuka, then continuing to the stables by the Creek Trail.

Dinner—Guests will dine in the PanOram's glass-enclosed restaurant. The superb cuisine is complemented with a view of the lights of Chattanooga. Many travelers say that this view compares favorably with the view of San Francisco from the "top of the Mark."

THIRD DAY

Breakfast—8:00 to 9:30, PanOram Hotel. Morning ride—From the stables the riders will go to Skyuka by the trails previously described. From Skyuka they will go up a 1200 foot rise to Bluff Trail, then south along Bluff Trail to Jackson's Gap, pausing at Iphigene's Cliff. Outdoor Luncheon will be served at Jackson Spring. This morning's ride is along trails of considerable height and will give the riders unusually beautiful vistas they have not experienced before.

Afternoon—After luncheon the riders will continue from Jackson Spring over Beacon Hill to Middle Road, then along Middle Road Trail to Lula Lake and Falls. They will dismount here and inspect this unusual spot which abounds in wild flowers of many varieties and other foliage. Lula Lake itself is one of Chattanooga's finest scenic attractions, and the 115-foot waterfall here is extremely interesting. The Spartans will climb to the peak of Eagle Cliff. From Lula Lake the riders will continue back to the stables over any one of four trails.

Total distance for this day's ride is approximately 20 miles.

All the rides for the three days have been designed to bring the riders back to the Hotel in ample time for dinner. A minimum of trail duplication has been arranged, and when trails are covered more than once they are usually ridden from the opposite direction.

In the event of rain during any of the days, the guests will be taken on a tour of other Chattanooga attractions, including Ruby Falls and Lookout Mountain cave, Chickamauga Dam and Lake, Nick-A-Jack Cave, the incline railway and other spots as time permits.

For reservations on either the April or May rides, write to Dorothy Dixon, The American Forestry Association, 919 17th Street, N. W., Washington 6, D. C.

(Adv.)

Second in a series of Davy Crockett tales told with a Paul Bunyan flourish. Yes, Davy was SOME boy

By JAMES STEVENS

Davy Was a Poor Boy

ONE night in the summer of 1904, when I was a twelve-year-old logger, a sober-sided pinetop named Ernest Hinote gave me a dreary hour of moralizing. This was not uncommon; it had grown to be Ernest's way of getting some pleasure out of life in Ben Cotter's camp. He had hired out with his span of horses to Uncle Ben for log-bunching. Some of my work was swamping for him.

Brother Hinote stands up in my memory as a prime example of my worst burden as a child laborer. The temptations I met among evil men were few compared to the preachings I had to endure from good men. This summer night was a sample.

"It is shore a sinful shame," Ernest Hinote began, cornering me in the bunkshack. "The law ort never to of allowed you to up and git and hire out lonesome thisaway. You ort to be steddyin' fer an education. But here you air, a-workin' with evil companions, a-chawin' and a-cussin', a-readin' them Frank Merriwell dime-novel lies you send down to Weiser fer. I kain't recollect when I've seen ary young'n a-goin' to the dogs so fast. Ain't you got nothin' better to do with yore wages than to spend 'em fer a .22 rifle?"

The answer in my mind was, "No," but I could only feel and look guilty. Here under my bunk lantern were the Merriwell books, and here was the fine and dandy little .22 that had just come in the mail from Montgomery Ward. It did seem a sinful waste, costing $7.77 with six boxes of cartridges, a pile of money out of what I could save from my wages of 50 cents per day and board.

Then I heard Uncle Ben Cotter's drawl, "He may snipe some grouse for the cookhouse, Ernest. If he does, I'll pay him for them. Anyhow, the boy is on the correct start to make himself a congressman. Ain't that good enough for you?"

"How can a .22 help a pore, igner'nt boy grow up to be a congursman?" asked Ernest.

"Davy Crockett was a congressman," said the sawmill owner. He sat down on the corner of my bunk and peered genially over his spectacles at Ernest Hinote. "He was a poor boy, so poor that he had to support his parents when he was seven. How could he do it? Why, with the rifle he was weaned on, to be sure. It made him favorably known all over Tennessee. Davy learned to read later, like Andrew Johnson after him, who could not read at twenty but became seventeenth President of the United States. Ernest, can you name another congressman of Davy Crockett's time? Think hard, and name just one."

Mr. Hinote thought hard. "James K. Polk," he said at last, triumphant.

"Henry Clay," said Uncle Ben, "was in Congress with Davy Crockett. So was John Quincy Adams, after Andy Jackson beat him for President. Davy Crockett got there by being a mighty hunter to equal Boone, a scout as good as Bridger, and a trail-tamer who was never caught up with by Kit Carson. By the rifle he rose. Story-telling helped him, too, as it later did Abe Lincoln."

Uncle Ben Cotter went on, blinking solemnly, telling how Davy Crockett was so poor when he was born his folks could not even afford a stork—the buzzards had to be called on to fetch him.

How lower, sorrier and more

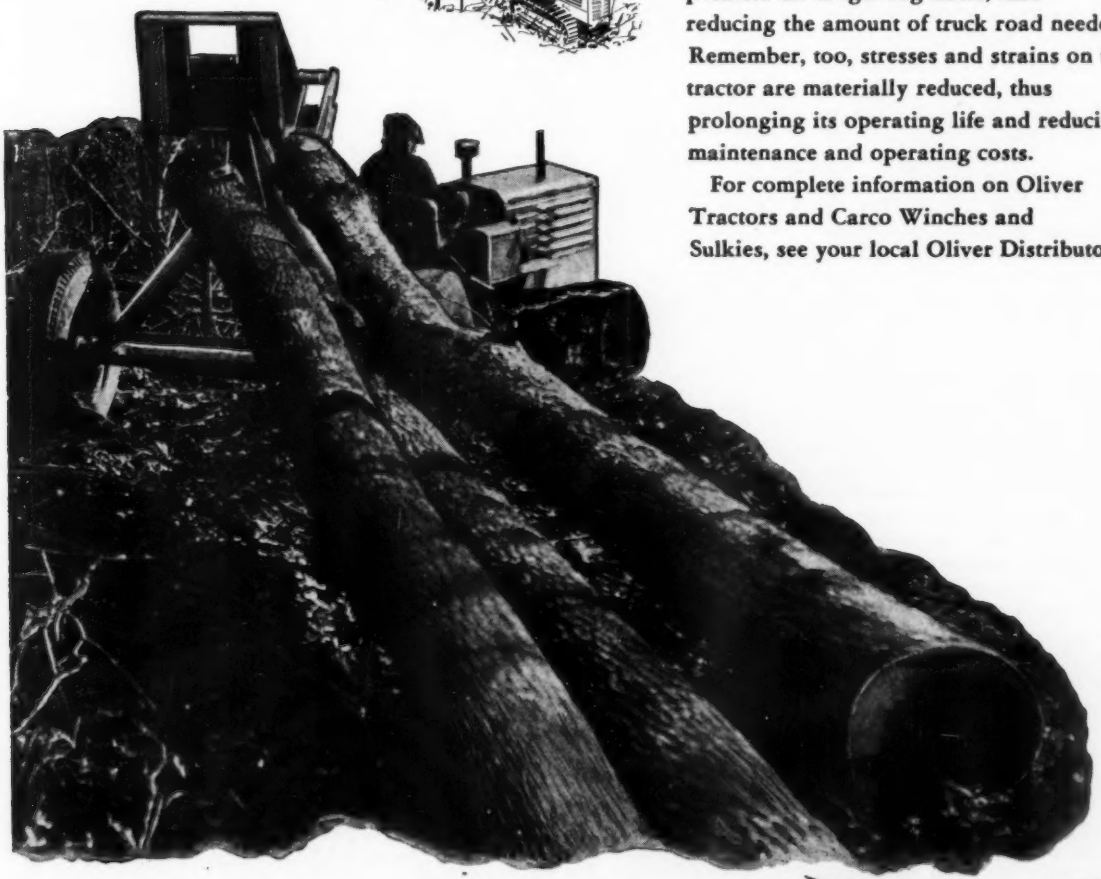
Easy to Get Out the "BIG ONES"

Here's the easy, economical way to get out tree-length logs . . . an Oliver Crawler Tractor and Carco Winch and Sulky.

With this cost-cutting unit, you can haul more and bigger loads. The powerful winch enables you to snake out logs from inaccessible areas. The rubber-tired sulky materially increases the load that can be efficiently and economically carried since the load is carried with one end of the logs raised off the ground. The load-carrying ability of the tractor is increased by decreasing the load resistance.

Oliver Tractors and Carco Sulkies make possible far longer log hauls, thus reducing the amount of truck road needed. Remember, too, stresses and strains on the tractor are materially reduced, thus prolonging its operating life and reducing maintenance and operating costs.

For complete information on Oliver Tractors and Carco Winches and Sulkies, see your local Oliver Distributor.



THE **OLIVER** CORPORATION

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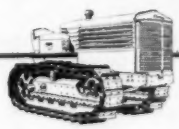


"THE SIGN OF EXTRA SERVICE"

wretched could the birth of anybody be? (Uncle Ben asked the question, heaved a monster sigh, then went on telling.) The shameful news soon spread around among the Crockett neighbors, for it had taken seven buzzards in a bunch to bring the new addition, and they were all stud buzzards, too. Pa and Ma Crockett hid out in shame, leaving the new innocent with his Aunt Screechy and Uncle Roarious, who lived away out in the backwoods with the panthers.

They were just what such an infant as Davy needed. He was fed from the first on panther milk, with bear milk on Sundays, and commonly Aunt Screechy beat rattlesnake eggs into the pap. A spoon carved from a buffalo's hoof and with an eagle's leg for a handle was the first trick Uncle Roarious fixed for the dewy infant. His rattle was a plugged bull buffalo horn primed with grapeshot. On windy nights Davy was lashed to the top of a tall sycamore for the gale to swing. How he thrived!

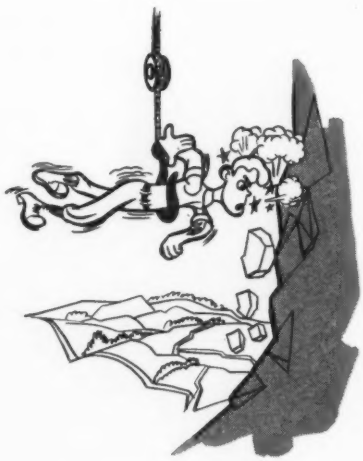
Davy Crockett's cradle was an early treasure of the Smithsonian Institution. William Jennings Bryan saw it there, and I heard him describe it at the Weiser Chatauqua. The cradle was twelve feet long and was framed from the shell of a snapping turtle that weighed 600 pounds. The hull of the cradle was varnished with the oil of a nest of brush eels that had rattles the size of cowbells. The pillow was an alligator hide crammed with Indian scalps. The cradle was rocked by power of a waterwheel for which the first dam was built on the Tennessee River. A steamboat sling for cotton bales was used by Davy when he slept up the sycamore.

The babe was a yearling before his ma could win the tussel and overcome her shame enough to go get him. She had never been to school but she was able to chop down a gum tree that was seventeen feet through and steer it across the Tennessee River, using her apron for a sail and her left leg for a rudder.

When Davy was weaned from panther and bear milk (but not from rattlesnake eggs, he liked them too well—he *depended* on 'em) he got along famously on bear hams, panther spareribs, alligator tripe and possum gravy. A Crockett sandwich was his common breakfast from eleven months of age on. He liked it ramping hot, slabbed up with half of a bear's ham, two sides of panther meat, alligator tripe for relish, and a Sunday loaf, all dripping with possum juice and steaming with its flavors. When he would wrap his baby lips around a bite and begin to chomp the bone crunching could be heard for half a mile.

Now Davy was the poorest of poor boys. His pa was good for nothing but diving for catfish and catching them in his teeth. Davy had to make his own way as soon as he could toddle. His ma could not begin to carry him by that time. She wanted to know his weight, so she toddled him down to the steamboat landing to be weighed on the government scales. No one ever learned the figure. One story says Davy broke the beam, but that always sounded to me like stretching it. Anyhow, we have Davy Crockett's own word for it, the fact is written down in his Almanacs, and is in the government records to boot, that he was felt.

They had government feelers as well as weighers in those days. One of these felt little Davy and wrote him down in the records as half oak and half stone.



With the word of the United States government for it, Ma Crockett began to route the toddler around and hire him out to roll gravel, with the hirer having the privilege of sharpening his ax on Davy's head as the baby rolled. His pay helped.

As Davy grew, his ma thought up a sight of other ways for him to make himself useful to his poor folks. She had found that he was solider in the head than in other parts. On one job that she got him Davy was hoisted by block and tackle and swung headfirst into cliffs to bust rock. The work would throw him into tantrums, for some reason, and then he would tear up the tackle. Davy was fired. But he more than made good on a job of driving piling into river mud for piers or levees. At this chore the boy would simply jump from one pile to the other, working his feet like oak mauls. It was fun for him. Fact is, that's where the term, "a pile of fun," got its start.

The poor boy was a Samson for hair. In his first five years he grew hair so heavy and fast that it made fancy mattresses for all the Crocketts in creation, who were previously pleased to sleep on shuck and straw ticks. When he shed his baby teeth they fetched a good price from Squire Pryde, who set them in along with slabs of marble for his new parlor fireplace. During the first ten years of his life Davy sweat tallow enough to keep the whole town in candles. Whenever Pa Crockett would run low on whisky he would wrap Davy in blankets, prop him close to the fire, and tell him, "Sweat, son, sweat."

What more did a poor boy need in his life, not only to be the pride and joy of his parents, but to prepare himself to be not just a man but a Congressman? For Davy's earliest dream was of Washington, D. C., to ornamentiate the halls of Congress and sagashiate in high society there.

So Davy worked away and time he was twelve he was allowed to have a rifle for himself and put out to support the family. When he was well in his teens Davy was so well known as a hunter who never wasted powder and ball that all the raccoons had heard of him. This included the famous Talking Raccoon of Great Gap.

Davy was hunting in the Gap one day and sighted a granddad of a raccoon high in a hackberry. He up with Brown Betty and clapped her breech to his shoulder. In a flash the raccoon lifted a paw, and said he, "Air you the boy who is knowed far and wide as the hunter, Davy Crockett?"

Davy spoke back politely and said it was so, he was the same Davy.

"Then," said the raccoon, "you needn't take any more trouble, for I may as well come down without another word; I consider myself shot. Save your powder."

And right down the hackberry walked the raccoon.

Deep in him Davy Crockett had a tender spot. Now it was touched. And so he reached down and patted the raccoon on the head and spoke to him kindly.

"I hope I may be shot myself," Davy said, "before I hurt a hair of your brave head, for never in my

(*Turn to page* 39)

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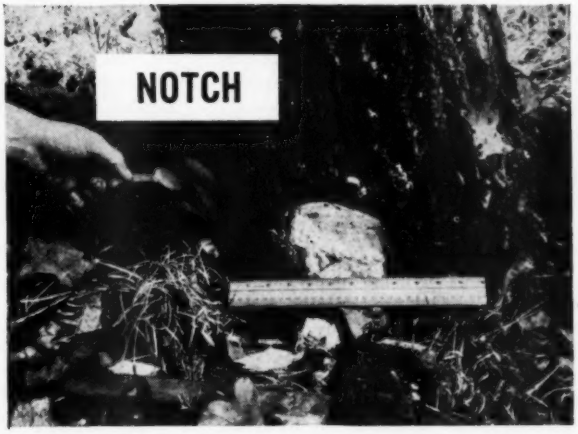
2 Cut small trees close to the ground, leaving a V-shape stump. Pour a tablespoonful of "Ammate" crystals in the V. You can also use "Ammate" on larger stumps to prevent resprouting.



3 Chop out a slanting chip close to the ground. Repeat every 6 inches around the trunk. Pour a tablespoonful of "Ammate" crystals in each notch. This method deadens even tough blackjack oak with little resprouting.

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The Incomparable Valley, by Francois E. Matthes, published by the University of California Press, Berkeley and Los Angeles, California. 160 pages, illus. Price $3.75.

This geologic interpretation of the Yosemite was written and planned by Matthes, but was not published until after his death in 1948, when his writings and notes were woven together by Fritiof Fryxell.

Gradual evolution of the valley during successive periods, culminating in the three glaciations of the Ice Age, is traced.

Other chapters discuss the matchless waterfalls, the domes, and changes wrought in Yosemite Valley during the relatively few thousands of years that have elapsed since the end of the Ice Age.

In addition to diagrams and drawings showing Matthes' interpretation of the glacial origin of the valley and a series of six scientific paintings, there are 23 photographs by Ansel Adams—the most outstanding shots ever taken in that region.

Northwest Angling, by Enos Bradner. Published by A. S. Barnes & Company, New York City. 239 pages, illus. Price $5.

Northwest Angling gives the fisherman a thorough coverage of numerous possibilities for fishing in the Pacific Northwest. In addition, there is a complete listing of virtually every steelhead river from British Columbia through California, with data on location, best fishing months and size of the run.

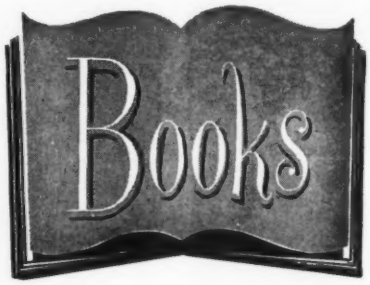
Another special feature of the book are color plates which illustrate for the first time original fly creations derived from natural flies of the Northwest, with a history of their development, information on their manufacture and suggestions on the use of kits to dress flies on location at stream or lake.

Flies, by J. Edson Leonard. Published by A. S. Barnes and Company, New York City. 339 pages, illus. Price $5.

The serious fly-fisherman will probably find himself reaching for this book more often than any other in his library. It is a complete treatise on the subject of artificial flies, their origin and history, together with "how-to-do-it" chapters on fly-tying and natural insect identification.

The section devoted to fly-tying covers every aspect of that worthy pastime, including the selection of materials and tools. Expert and novice alike will appreciate the detailed, illustrated instructions. A beginner can get started on the right foot, and there are many fresh ideas for the old-timer.

One of the more important features is the dictionary of 2200 patterns, many of which are compared in detail with the natural insects they simulate. Several contemporary fly-tyers from various sections of the country have contributed letters on their favorite patterns, giving the reader an opportunity to compare notes with the experts.



When ordering books—any book—remember that your AFA membership entitles you to a ten percent discount. Order through the Book Department, The American Forestry Association, 919 17th Street, N.W., Washington 6, D. C.

Our Desert Neighbors, by Edmond C. Jaeger. Published by Stanford University Press, Stanford, California. 239 pages, illus. Price $5.

Complete with excellent pen drawings and black-and-white photographs, this book was written by a true friend of desert wildlife, Edmond C. Jaeger. He has explored North American deserts by varied modes of travel and came in close contact with wildlife in the remotest areas. His is a much warmer approach than that of a formal scientist, for he understands the creatures' distinct personalities as well as their family trees and peculiar habits. Based on scientific facts and personal observations, the book emphasizes the important part our desert friends play in nature's over-all scheme.

Sequoia National Park, by Francois E. Matthes. Published by the University of California Press. Berkeley 4, California. 136 pages, illus. Price $3.75.

Another work made possible by Francois Matthes before his death and later edited by Fritiof Fryxell—a novel interpretation, with the aid of visual material, of the geologic features of Sequoia National Park. The illustrations point up its main geologic phenomena and are accompanied by brief, descriptive text.

Invaluable to hikers, campers and libraries, this splendid handbook will add to the enoyment of the Park's grandeur.

Forest Mensuration, Third Edition, by Donald Bruck and Francis X. Schumacher. Published by McGraw-Hill Book Company, New York City. 483 pages, illus. Price $5.

Donald Bruck, a consulting forester of Portland, Oregon, and Francis X. Schumacher, professor of forestry at Duke University, bring up to date the progress made in forest mensuration since the book was first published fifteen years ago.

Special features of the third edition include: revisions and rewriting in the chapters on log scaling, timber cruising and taper tables; new form class volume tables for use with many species fully discussed; new chapter on mensurational phases of using aerial photos in timber cruising; and expansion of the section on growth and yield.

Illustrative materials and problems have been revised where necessary to correspond with new procedures described.

Missouri, Its Resources, People and Institutions. Published by the Curators of the University of Missouri, Columbia. 605 pages, illus. Price $4.

A volume chock-full of authentic information about the natural, human and commercial resources which go into the making of Missouri. Numerous attractive illustrations, drawings and charts emphasize the natural wealth of the state.

The book is the product of 39 co-authors, most of them members of the University of Missouri faculty and each an authority in the field about which he has written. A special board of editors combined and edited this material into a comprehensive and interesting work. It is written neither as a textbook nor a mere catalog of Missouri's natural and cultural wealth, but is an inventory of the state's resources and its people, told interestingly and authentically.

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Do We Need Lumber Price Controls?

(*From page* 9)

But recently the general lowering of prices has caused some of them to close, and thus national industrial output has experienced an immediate reaction to lumber prices. Simply stated: A certain level of market prices will generate a corresponding volume of production, but no more. Generally speaking, then, it's the numerous small mills that add those last few billions of board feet to total national production—the few billions that may be so vital to both defense and civilian requirements.

And now, the lumber industry is beginning to find itself in a paradoxical situation. On the one hand it is said that unless the industry hurries up its efforts to grow more trees it must face public regulation. On the other, it is told that lumber prices are too high. The paradox lies in the fact that under our private enterprise system, trees can be grown only when it is profitable to do so—and arbitrary price controls may ruin that possibility. Especially during the last decade, the lumber industry has made excellent progress in timber growing—because it became profitable to do so.

Corydon Wagner, president of the National Lumber Manufacturers Association, in issuing a revised forest policy statement for the lumber industry said recently: "This statement stands as an inviolate promise to the American people that the conservation of all our forest resources through wise use, protection and regrowth, is the goal toward which we in the lumber industry are striving with all the means at our disposal." This progress and attitude should not be jeopardized.

This does not mean we should ignore the harmful effects of unrealistically high lumber prices. It can be truthfully said that many in industry view such prices with greater alarm than do government officials and the rank and file of the public. Industry knows that it must continually fight for markets against many forms of substitutes where price is often the determining factor. It advocates the doctrine of better quality at a lower price and is continuously striving to fulfill that doctrine. Through research, new processes of manufacture, better equipment, less waste in the woods and mills, more satisfactory distribution and other innovations and developments it constantly seeks to promote the use of its products, and to reduce prices.

Only through the dynamic vitality of the private enterprise system, including the free plan of the open market, can adequate supplies of lumber at fair prices be made available for defense needs and civilian requirements. If controls are imposed on lumber, we can anticipate a serious blow to lumber production to be the result.

If mandatory price controls are invoked on lumber, let us hope (1) that such controls will be part of a complete but flexible wage and price control program; (2) that this program will be effectively and equitably enforced on one and all; (3) that thoroughly experienced men from industry will be asked to guide the lumber price program, and (4) that those in charge will be given authority to raise or lower prices quickly and adequately as the need arises.

But, above all, let us hope that the government will adopt those measures that strike at the basic causes of inflation.

A Burning Attack on Pollution

(*From page* 23)

regulations, employed a competent director and financed a staff of field men to check every river basin and important stream in the state.

One of the main obstacles in past anti-pollution cases was often the lack of definite evidence to fix the degree of responsibility. When a corporation or municipality was accused of pouring wastes into a stream, those accused would say, "Don't look at me. It's John Doe across the river, or, Richard Roe upstream. Me, just a little, no harm."

The Wisconsin committee didn't fool around. The first job was to put its crop of sanitary engineers and biochemists to work on every river basin, checking the degree of pollution and then pin pointing the cause. They put accurate evidence in formal reports presented at formal hearings. And then came: "Now, Mister, what have you got to say?"

As the first important move, the state committee, following hearings and conferences, set a deadline for all municipalities with sewers to build acceptable treatment plants by the end of 1952. Three cities balked. But the minute the attorney general's office reached for an injunction the cities agreed to comply. "There are known ways of treating municipal refuse, and sewage is a public health hazard," ruled the state committee, slamming down the lid and bans.

Checking the rivers, stream pollution engineers came up with technical evidence that the lower Fox River—historic canoe route of explorers down the Great Lakes to the Wisconsin and into the Mississippi—was so polluted at the lower end as to be "dead water." Often there was not any oxygen left in the stream from Lake Winnebago to Green Bay, with pollution showing up for 25 miles from the mouth of the Fox into Lake Michigan's waters. This bustling and fertile river valley is the heart of the Wisconsin paper industry, with almost a mill a mile along the hard working river.

State engineers found the lovely Peshtigo, once one of the finest trout and white water streams in all the Midwest, and long stretches of the Wisconsin River seriously polluted. Going on the badly damaged list was the Manitowoc, the fast flowing Chippewa and the Rock rivers, even the sightly Flambeau.

And in the case of the lower Fox and upper Wisconsin they blamed much of the pollution load on paper mills. The scummy bottom was coated with fiber and chips, and the water so full of sulphite as to be unable to support normal fish life or be of much public use.

Ever since man learned to grind and cook wood to produce fiber for paper, lignin wastes have been a problem, in fact a headache. Trained foresters know that in the sulphite process about half the pulp log comes off as pulp fiber and half as waste lignin and that this lignin is still an unsolved chemistry mystery. Here is the master glue created by nature in

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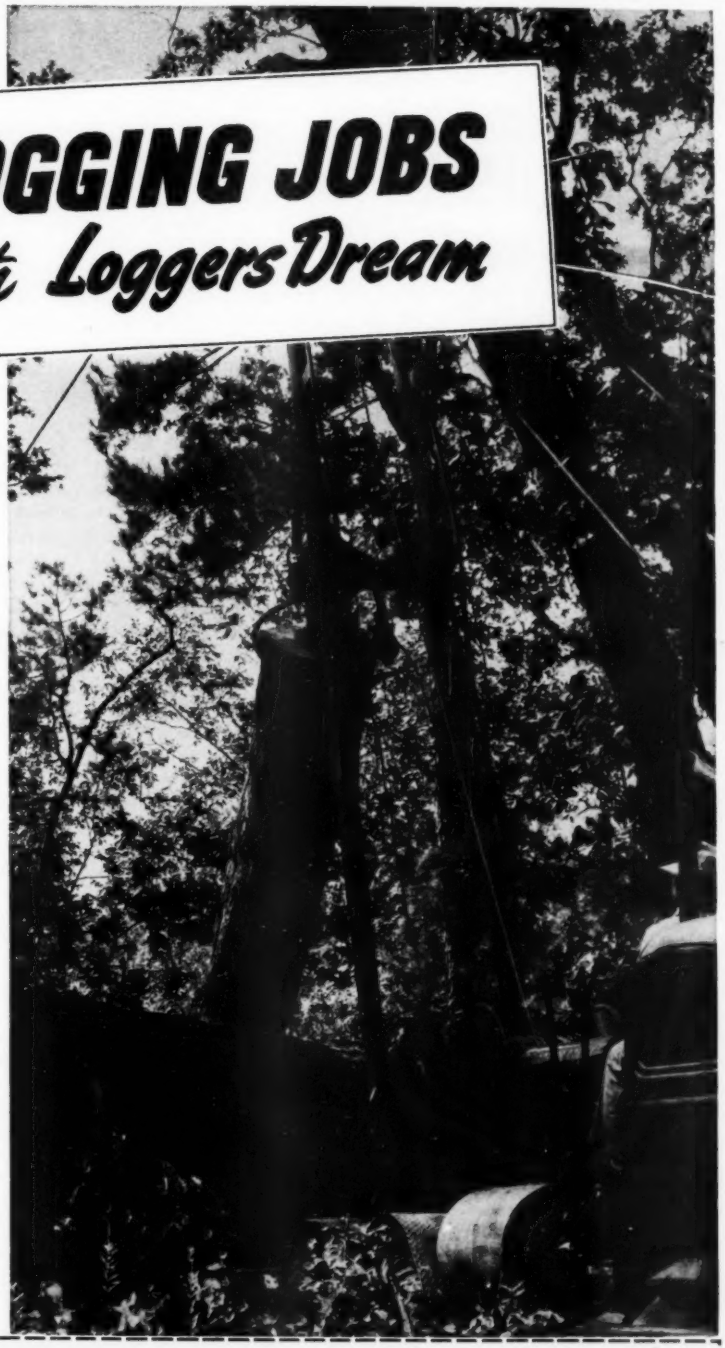

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a tree firmly holding the living fiber together. Even the keenest scientific brain today has never learned to duplicate nature's forest glue nor to understand fully just how it can be utilized.

Lignin, wood sugars, rosin and chemicals have been poured into the rivers. While not a hazard to public health, sulphite is a nuisance, a stinking mess that kills fish. Riparian property owners protest the smell, especially during warm and low water months when living on such a river frontage is practically intolerable.

Hearing the evidence—and it was stormy—the Wisconsin stream pollution committee cracked down, giving the Fox River valley sulphite mills one year (1950) to prepare approved plans and to build treatment plants to handle this sulphite, generally, by the end of 1951.

"There are no known methods of abating this type of pollution," pleaded the paper mills, asking extensions for additional time for research. From these developments came a change in sentiment. People of all kinds—even youth in the schools—took an interest and a critical look at the issues.

And paper mills, a bit alarmed, stepped up their research from laboratory theory to more practical applications. The state committee was standing firm, and mill owners were looking at a stiff law and facing penalties.

Not even a casual observer can look at the pollution problem in Wisconsin and honestly charge that the paper mills have been indifferent in their attempts to effect a remedy in the last five years, for they have spent more than three million dollars and searched the globe for the answer. Through the association of sulphite pulp manufacturers, they pooled to finance research work in Appleton. The league built a half-million-dollar pilot plant for converting sulphite into yeast, tried it out as a road binder and tested many laboratory tips.

Marathon Corporation, with Allen Abrams as vice-president in charge of research, developed a series of commercial applications, one of which is vanillin, a synthetic vanilla flavoring. Synthetic rubber makers are using sulphite in another form for boiler cleaning compounds and even drugs. Important, yes, but none of these applications provided the possibility of complete use of the millions of gallons Wisconsin was pouring into its rivers. This was only a comparative trickle.

Years ago the Institute of Paper Chemistry had tried burning, but the process was relegated to the technical shelf—too costly.

Being up against time limits set by the state, Wisconsin sulphite mills sent three of their top engineers to Europe where they explored processes used in treating mill wastes in Scandinavian countries and Germany. They also had to look at methods tried on the Pacific Coast. "Europe hasn't got anything we haven't got," said J. M. Holderby of Rhinelander, formerly in charge of the research league and now developing the yeast process for the Rhinelander Paper Company.

But Wisconsin engineers did find an evaporator which they brought back to the Appleton laboratory. This Rosenbald evaporator has proven the key to revived burning experiments. Improvements were worked out and the process tried out experimentally, followed by a few cautious pilot plant tests.

Working in close cooperation, Wisconsin and Michigan mill operators exchanged information and set up an inter-company committee to exchange ideas. Time was running out. The Kimberly-Clark Corporation stepped right up and opened its doors to a demonstration of burning sulphite. And it worked.

Spent sulphite liquor coming from a digester as a watery waste will not burn. In fact, it will extinguish a fire. But when the sulphite is circulated through a vacuum under high temperatures, boiling off half the water, the residue comes out a sticky, molasses-like product.

Tank cars of the concentrated stuff were shipped to the Niagara mill of Kimberly-Clark. The first time the engineers tried it they used a bronze hose to pour the liquor into the boiler, and it was a failure. The boiler blaze burned the hose until the sulphite put out the fire and flooded the boiler room, strictly a mess.

Designing special nozzles, the Kimberly-Clark engineers preheated the concentrated sulphite to 192 degrees, using two jet nozzles in each boiler. Then they hooked up 50 pounds of air pressure to shoot the sulphite "fuel" to the nozzle tips, after which they slapped in 65 pounds more steam pressure. Thereby was created a fine spray, an atomized fog. Sprayed over a bark bed of fire—the kindling—this sticky and hot liquor almost exploded. The effect was about like putting powdered fuel under pressure as used in

modern steam boilers of hydroelectric plants.

Peer through cobalt glass at the burning sulphite fog, and it is like trying to look at the noonday July sun, a roaring blast. The steam gauges stayed up acceptably as compared to boilers continued on coal. Around 400 gallons of the sulphite a minute were sprayed through each nozzle.

"The limiting factor will be the costs. So far it is considerably more than coal," says H. A. Rotchild of Neenah, Kimberly-Clark Corporation technical director. "The main problem ahead is getting the waste liquor from digesters at sufficient concentration to avoid high evaporation costs. That will take considerable engineering. Just think what it would mean in Wisconsin for the mills to be independent of John L. Lewis and coal, using sulphite—a waste becoming fuel."

Here was more progress than in the previous 30 years of handling sulphite — complete disposal — but there are a lot of kinks to be worked out. For one thing the mill operators would like to get the costs down, more in line with $12 to $14-a-ton coal. Says Groff Collett, Appleton business manager of the Sulphite Pulp Manufacturers Research League, "Since we know we can burn it, we are confident costs can be lowered and the efficiency improved."

The paramount point favoring the use of sulphite as fuel is that it can be kept out of surface waters the year-round. All other applications have limitations. The Flambeau division of the *Kansas City Star*, Park Falls, has been offering untreated sulphite to highway departments to spread on highways and road shoulders as a dust settler and effective binder. However, this offers no solution in winter. One Wisconsin mill could turn out all the vanilla flavoring a limited market would absorb. The use as a high protein feed for poultry and livestock in the yeast process had encountered competitive price difficulties. All these call for mills to set up marketing outlets separate from paper.

Changing over from the sawmill days of using waste wood to fuel the boilers, Wisconsin paper mills, located on fast flowing rivers, use both hydroelectric and steam power to run up big coal bills.

"The evaporation and burning process for industrial fuel was selected as best adapted to the situation at the Northern Paper Mills after long investigation of three other

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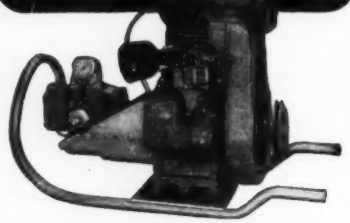

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promising processes," says President Boex. The burning equipment is designed to reduce the pollution effect of spent sulphite liquor by 40 to 45 percent. The cost of $1,500,000 does not include a new building since the mill converted a present structure for the proposed installation.

The high costs are an obstacle, for no mill wants to go broke trying to abate pollution. Folke Becker, president of the Rhinelander Paper Company, testified at the Wausau hearing of the state that it would cost each mill at least $800,000 to build burning plants. This mill is ordering burning equipment designed to run the effluent from its yeast plant and part of its sulphite through the boilers.

The program announced by the Northern Paper Mills calls for 100,000-gallon storage tanks sufficient for 12 hours' collection. The liquor would be evaporated down to 52 percent and pass through two vapor body concentrators of reversing type to further reduce the liquor to a solid content of 60 to 65 percent before being sent under pressure through atomized burners.

One problem created by using sulphite as fuel is pollution of the air by fly ash. There are around ten tons of this ash for every 100 tons of condensed sulphite burned as fuel, but plans of the Northern Paper Mills provide for installation of ash collectors with the combustion engines.

With Fox River valley mills under state orders, the Wisconsin committee is reviewing the hearing held in Wausau, December 11 and 12, for the 14 mills operating in the Wisconsin River valley. Eight cities were told to build sewage treatment plants. Kraft mills cited at this hearing told of reducing fiber and chip losses through installation of screens. Sulphite mills cited as sharing in responsibility for pollution of the upper Wisconsin between Rhinelander and Nekoosa pointed to the growing war crisis. They suggested relaxing the regulations.

These mills are not under compliance orders as are those in the Fox River valley. It was obvious all the mill men were hopeful that the Wisconsin stream pollution committee would take a hesitant position, cognizant of the international situation. So far the Wisconsin committee has taken no official notice of the probability of federal bans on metals, especially the stainless steel essential in sulphite liquor treatment equipment.

Says director Theodore F. Wisniewski of Madison, "The state was stymied during the last war in carrying out pollution laws and decrees and the damage mounted. Time is running out in protecting water supplies, so until the bans are announced this committee looks upon any such appeals as excuses and alibis. We have been told by the legislature to get the job done."

Wisconsin has developed a good head of steam in curbing pollution. Even more important than the push to get all cities and villages to build sewage treatment plants and dairies and paper mills to start solving their problems has been an amazing change in public sentiment. For the first time even school youngsters and housewives list water along with topsoil and timber as a natural resource that must be protected and conserved.

This Wisconsin cleanup program is still midway between eager demands of extreme conservationists and the old "hold back" attitude so frequently expressed by paper mill owners. The once-over program, in the move to get all raw sewage out of streams and make sound progress in plugging up leaks on industrial wastes, has been completed. The situation is comparable to that of a husky lad who has been allowed to play in dirt and is now being yanked to the wash basin and handed a brush and soap. The once-over has cleaned up the worst and obvious pollution, but there remains the job of washing behind the ears, kinks and corners.

The only question is whether there will be "soap" enough to push the campaign, the soap being metals and equipment for treatment plants. If the steel goes for guns there may not be enough for evaporating plants and treatment equipment.

The objective of the state committee is to rush the long neglected cleanup of the worst sources of pollution, then go back and recheck, urging municipalities to do a better job, separating storm and sanitary sewers and building secondary treatment plants. Then would come a check on summer resorts and vacation homes on the inland lakes, all showing traces of pollution, some serious.

There are only two cities, Kewaunee and Port Washington, still putting sewage into Lake Michigan. Both cities have agreed to employ competent engineers and build treatment plants.

Rather than opposing state orders or recommendations, Wisconsin industry, including the mill owners, after grumbling a bit are swinging around to cooperative compliance.

Water Policy

(*From page* 15)

issues and likewise demanded co-ordination of federal water policies. As a matter of fact, Theodore Roosevelt's Conservation Commission in 1909 urged the nation to adopt a water policy which in essentials does not differ from that offered by Truman's Commission.

The present report, although a virtual textbook on watershed behavior and management, is disappointing in important ways. The flat recommendation that projects already authorized by Congress should not be disturbed tacitly approves of such muddled programs as the six-billion-dollar Pick-Sloan Plan now being carried out in the Missouri Valley. Oddly enough, Mr. Cooke has been among the strongest and most intelligent critics of the Pick-Sloan Plan.

The Commission treads gingerly over the hotly-debated question of river-valley authorities. It does not recommend the creation of TVA's for other regions, but suggests that we "take advantage of what the country has learned from that experiment in unified development of the water resources of basins." The Commission seems to accept TVA's own estimate of its accomplishments and says nothing about its shortcomings. Nor does it indicate that TVA has never adopted the river-basin concept in developing the resources of the Tennessee Valley and is only now beginning to explore the techniques of watershed management.

Finally, while pointing up the interagency feuds and fights for prestige and appropriations (without naming names, as the Hoover Commission did), the Truman Commission largely ignores the role of Congress in our misbegotten water development policies. Yet, in the final analysis it is up to Congress to correct the federal government's mistakes and set our programs on a rational and sound course.

The value of "A Water Policy for the American People" will depend on whether Congress will "buy" its recommendations—whether it will give up the pork-barrel type of projects, rise above the demands of sectional interests, and ignore the blandishments of powerful federal agencies, like the Corps of Engineers, which have repeatedly flouted Presidential orders and refused to work with other bureaus in developing a coordinated water policy. Acquiescence by representatives of federal conservation

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bureaus in the Commission's report does not mean that they will live up to its suggestions.

The recommendations of Theodore Roosevelt's Conservation Commission and Franklin D. Roosevelt's NRPB were generally ignored by Congress. Will Truman's Commission fare any better?

At this juncture in our political history, and in view of the economic climate, there is little hope that Congress will listen to the admonitions of Mr. Cooke and his colleagues. Congress has still to take action on the Hoover Commission recommendations for getting our public works administrative setup in order.

"A Water Policy for the American People," which runs so dramatically counter to present federal practices, thus seems likely to become a valuable academic document — but little more.

Trees Made Palm Springs

(*From page* 17)

Many came for their physical health; others for rest and solitude. Here stayed John Muir; Robert Louis Stevenson; George Wharton James, the western historian; Charles W. Fairbanks, later to become our Vice-President; and numerous other greats.

They all marveled how Dr. Murray had transformed his patch of creosote and mesquite-grown desert into a paradise of trees. Hardly had the hotel gone up when he started planting them. An ardent horticulturist, he constantly kept in touch with the Bureau of Plant Industry in Washington, D. C., enthusiastic to try out species not indigenous to this wasteland. Although he raised citrus fruit and figs in marketable amounts, he was more proud of his grove of cottonwoods and native palms (*Washingtonia filifera*). To begin the latter, he obtained young offshoots from wild groups growing in neighboring canyons. Not only did he plant them on his own premises, but around the thermal springs on the Agua Caliente rancheria — part of the local Indian reservation.

To keep his groves alive, he was forced to depend upon a stream from Tahquitz Canyon, the sole source of irrigation water. Also relying on this were the Indians who watered their fields of corn, squash and beans. As long as there was ample water for both, they tolerated one another, although the Indians shook their heads and questioned Dr. Murray's passion for trees that did not yield edible fruits; instead, were grown for their beauty and inspiration.

Around the middle 1890's, though, began a dry spell that some regional historians term the 11-year drought; others limit it to ten years. Whatever the precise extent, water in the Tahquitz flume diminished to a dribble. Unmindful, the Doctor tapped the last few drops for his "beloved trees." Alarmed, the Indians sent a mounted delegation to the agent at Banning, who ruled that they, not Murray, had priority to the water.

Angered, the Scot averred that he would keep the trees alive "with my own tears, if need be." During the heat of the controversy, a flash flood filled the creek and flume to overflowing. Joyfully, the Doctor threw the sluice gates open and water in abundance filtered down to the thirsty roots. Maddened, the Indians slammed shut the sluices and fastened them securely. Under cover of night, the wily Scot forced the gates open with hammer and crowbar. His actions, however, were futile, for both creek and flume were again dry. For long months, he and the Indians faced the specter of seeing everything they valued perish. In the end the Doctor won, as evidenced by vestiges of his groves that flourish to this day.

J. Smeaton Chase in *Our Araby—Palm Springs*, a little book long out of print, writes of the trees which "flourish in tribute to the memory of that wise old Scotsman and pioneer, Doctor Welwood Murray, who had the courage to plant and the patience to rear them in the teeth of horticultural disabilities."

In 1911, his wife died. For three more years, Dr. Murray continued alone. Broken in health and spirit, he was forced to sell. A few months later, August 3, 1914, he passed on.

Other than in the pages of history, Dr. Murray's name is perpetuated in "Murray Canyon" in the adjacent mountains and in Palm Springs' Welwood Murray Memorial Library. According to a report, the early-day hotel is to be razed to make room for contemporary buildings. When this occurs, it is only hoped that many of the trees will be spared. More than anything else, they are a memorial to him.

Davy Was a Poor Boy

(*From page* 28)

days have I been complimented so splendiferous."

Never afterward did Davy have the heart to fire a rifle ball through a raccoon, for fear it might be a blood relation of the good Talking Raccoon of Great Gap.

In such ways of the hunter, and by making and telling stories, did the poor boy Davy Crockett grow himself up to be a Congressman. And there he was, year of 1837, when a money panic swept the country and was near to ruining it. Then Davy made his famous speech. My own pa made me learn it by heart. I can still say some of it. This is how he wound up, telling the troubled country's main need.

"I move," orated Congressman Crockett from the floor, "that the only way to save the country is for the whole nest of you political weasels to cut stick home instantly, and then some, leaving it to ME to work Uncle Sam's farm, so that unhampered I can restore it to its natural state of cultivation and shake off these state caterpillars, ticks and cutworms of corruption.

"Let Black Dan Webster, sitting there at the other end of the desk, turn Methody preacher; and let Jack Calhoun, propped before him, with hair brushed back in front like a huckleberry bush in a hurricane same as Old Hickory's topknot, turn horse jockey.

"Let Harry Clay, hitched in the corner with his arms folded about his middle like grape vines around a black oak, go back to old Kaintuck and improve the breed of lawyers and other black sheep. Let old Daddy Quincy Adams, sitting there behind Clay, go home to Massachusetts and write political primers for sucking politicians. Let Jim Buchanan go home to Pennsylvania and smoke long nine with the Dutchmen. Let Tom Benton, bent like a hickory sapling with log rolling, take a roll home to Missouri and make candy mint drops for the babies.

"Let 'em all be home-bound but

(*Turn to page* 42)

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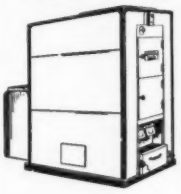

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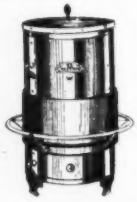

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Q.—What is meant by the word "maturity" when used with reference to the growth or age of a tree?

A.—Maturity is a word used in forestry to describe the age at which a tree or stand of trees will no longer increase in value fast enough to earn a satisfactory rate of interest. Maturity deals primarily with the economic or financial aspects of a tree or stand of trees.

* * *

Q.—Does a tree in growing add an annual ring each year until it reaches or attains maturity?

A.—Yes, if it is a tree of temperate regions, and even after it reaches maturity. Such a tree adds an annual ring every year it lives.

* * *

Q.—Does a tree after reaching maturity add an annual ring and increase in girth for each year thereafter?

A.—Yes, but the increase in girth may not be perceptible and it would be necessary to take exact measurements (at the same elevation on the stem as taken in previous years) with instruments measuring to one-thousandth of an inch.

* * *

Q.—Is it an established fact and not a presumption that trees add annual rings each year and continue to do this as long as they live?

A.—Yes, this is true.

* * *

Q.—How do climatic conditions affect the growth of trees? Do those in equatorial zones add annual rings the same as those in temperate zones? How are those affected in the "between" zones?

A.—As a general rule the growth of trees is advanced in warm climates and retarded in cold climates. Ecological factors such as elevation, soil, water, exposure, etc. also affect the rate of growth in trees. For example, some trees in Alaska are 150 to 200 years old but only 6 to 8 inches in diameter. Some trees in ideal growing sites—for example, loblolly pine —may have 12 annual rings (at ground level) showing the tree to be 12 years old at a diameter measurement of 14 inches. Thus the tree has grown more than one inch in diameter during some of its years. Trees of the tropics do not show annual rings in the wood because the growth is uniform the year round. The age of tropical tree species must be judged from the knowledge of comparative height measurements from one-year seedling to old age. Trees native to the zones between temperate and tropical climates are more apt to exhibit annual rings in the wood because growing conditions are not uniform the year round.

* * *

Q.—I know of a magnolia tree that measured 72 inches in circumference at a point four feet above the ground in the year 1835. Today it measures the same. As these measurements indicate no growth has taken place in the last 115 years, Does this indicate the tree had reached maturity and ceased all growth at some period prior to the year 1835? If a count of the annual rings were made today would such count indicate its age up to the time of reaching maturity (that is at some period prior to the year 1835) or would its age up to the time of the count be indicated?

A.—It is quite likely that the circumference measurements of the magnolia tree, taken after a 115-year interval, were not applied identically to the same point on the stem, otherwise there would be a difference in measures. The last 115 rings could be crowded wafer-thin into a cross section measuring a fraction of an inch. If you could examine a basal cross section of the tree stem today, you could determine according to the pattern of ring widths at approximately what age the tree reached maturity and consequently how long it has been living in old age.

* * *

Q.—Does location or environment affect the growth of trees? Will the so-called "stunted" tree which has survived under adverse conditions, such as in dense shade or on the exposed crests of mountains, add annual rings although records kept of the tree would indicate no appreciable increase in girth of the tree had taken place?

A.—Yes, many factors influence the rate of growth of trees. An examination of some felled trees may

show that midway in the radial cross section, rings were very close together while those of more recent years are farther apart. This indicates the tree was suppressed during part of its life but later took on more rapid growth because of its release from over-topping trees or other suppressing factors.

* * *

Q.—Will a tree well marked by blazing retain such marking outwardly visible as long as it survives prior to reaching maturity? If the blazing took place after the tree had reached maturity how would it be affected by future years?

A.—Blazes on young trees, two inches to 10 inches in diameter, may still be in evidence after the trees have reached maturity. However, the blaze scars are much more difficult to find 10 to 20 years later because the bark healing is generally most complete in young, healthy trees. And, too, the bark of young trees changes to a darker and roughened appearance by the time maturity is reached at 10, 12 or more inches in diameter. There are exceptions, of course, like the American beech which retains a smooth, gray bark during its lifetime. On the contrary, blazes on trees of pole-size girth or larger usually retain distinct, open scars during maturity and old age. The bark on mature trees is already dark and roughened and the blaze wound heals much slower.

* * *

Q.—What are some of the visible outward indications or characteristics of a mature tree?

A.—Diameter and height, size and method of branching in the crown, character of bark, evidence of persistent dead branches or twigs and length of growing tips as compared to former years are some of the outward conditions to judge a tree for maturity. The trained observer must depend on his many years of practical experience in the woods or correlate the judging points with known scientific data on the different tree species in relation to growing sites.

* * *

Q.—If an accurate count of the annual rings of a tree is made can such count be relied on in all instances to indicate the correct age of the tree?

A.—Yes, if you do not count false rings, formed by excessively wet or dry periods, and proper addition of years is made to the total ring count to allow for a seedling of the same tree to grow to stump height.

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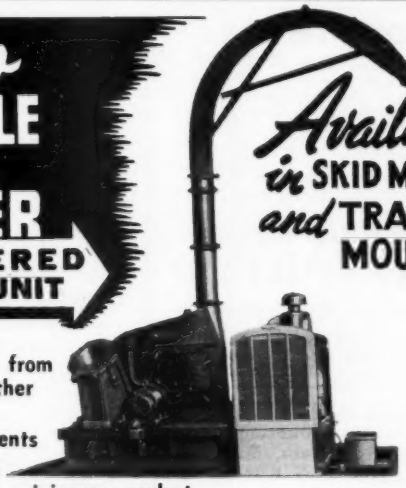

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Davy Was a Poor Boy

(*From page* 39)

me. All have worked Uncle Sam's farm with the scarifying harrow of rascality until it is as gray as a stone fence, as barren as barked clay, and as poor as a turkey fed on gravel stones!

"And to conclude, Mr. Speaker, the nation can no more go ahead under such a state of things than a fried eel can swim upon the steam of a tea kettle. Mr. Speaker, the country calls for Crockett in its distress. And here I stand. . . ."

And there we were, as Uncle Ben Cotter finished saying the speech of Davy Crockett in the halls of Congress. Just Uncle Ben and me. Ernest Hinote had quit us to take to his blankets long ago. He never did bother me again about my Montgomery Ward .22 or my Frank Merriwell stories while he was in camp, not even when I went hunting grouse on a Sunday.

Canada's Plan for Insect Control

(*From page* 13)

of virus are obtained by field collection of virus-killed insects, or by causing epidemics in lab-reared colonies. In many respects the Laboratory of Insect Pathology is a pioneer effort, and serious difficulties were encountered in its planning and execution. Ten persons with specialist training head the staff which includes about 12 technicians, seasonal assistants and maintenance and clerical help.

Research on insect viruses is about 100 years old, but a really adequate knowledge of this field has been attained only in the last few years since modern methods have been applied. Very special equipment is necessary and is available in only a few laboratories the world over. The Canadian government has furnished the Laboratory of Insect Pathology with the most modern and effective instruments and has housed equipment and staff to produce the most favorable working conditions. Supplementing the division of virology are those devoted to mycology, bacteriology, histology and biochemistry. With such teamwork the part played by disease in the control of forest insects, one of the most baffling of all fields of inquiry, gives promise of a final solution.

Winter Picnicking

(*From page* 11)

the addition of charcoal to the fire as cheating, but it is wise for the beginner to have this artificial means on hand. Paper is almost always necessary to kindle a fire quickly if damp material is used. In summer a fire serves doubly to warm food and to keep away mosquitoes and flies; in winter it not only heats food but provides welcome warmth for the campers. Therefore, it is especially important to build a big, strong fire at a winter outing.

While you are building the fire, other members of the party arrange the camp. If the picnic is to be an extended one or if the wind is sharp, it is a good idea to construct a lean-to which will shelter the fire, provide a place to store equipment, and shield campers from icy winds. It is built between either the crotches of adjacent trees or between two forked sticks placed approximately six feet apart. Another stick is laid horizontally across the forks to provide the ridge pole.

Then fasten a tarpaulin brought from home or branches found at the picnic site from the ridge pole to the ground, both horizontally and vertically, to form the shelter. The branches may be held more solidly by fastening them with cords. If desired, the sides of the lean-to may be closed with additional branches.

Originality and aptitude in using the supplies of nature help your friends create a picnic spot to remember. Fallen trees form ready-made benches, and a tree stump becomes a makeshift buffet table. A live centerpiece, such as snow-covered evergreen branches and pine cones, lend appeal at a camp meal and make it seem like a banquet. With less

luck, a cleared spot of ground can serve as a table and blankets, tarpaulins, or old raincoats from home can substitute for log chairs.

Whether you reached the picnic site Hans Brinker style or in a slightly less picturesque way, your athletic efforts must be rewarded with a meal designed for quick pick-up. Dr. May S. Reynolds, professor of home economics at the University of Wisconsin and a winter picnic enthusiast, suggests the following menu as appealing and simple to fix over a winter campfire. Pancakes, bacon, maple sirup, bread sticks, butter, and coffee.

Mrs. Reynolds reminds masculine cooks to fry the bacon first to supply grease in which to cook the pancakes. She stresses the added fun of preparing the main dish at the picnic. Isn't it more fascinating and appetizing to toss into a pan unmeasured amounts of beans, ground beef, onions, tomatoes, and other ingredients to please your fancy, than to heat already-prepared chile con carne?

Among other foods favored by winter picnickers are scrambled eggs dotted with bits of bacon, squaw corn made of the canned vegetable mixed with bacon and green peppers, corn with wieners sliced into it, and pigs-in-a-blanket formed by fastening bacon around wieners with tooth picks. Aluminum foil cookery, innovation in kitchen and summer camp, also simplifies wintertime food preparation.

Grilled cheese sandwiches are simple to make if your equipment includes either a hand grate or a grate that fits over a permanent fireplace. Hamburgers with strips of onion should not be forgotten. Barbecued spareribs are an added attraction to hot German potato salad cooked with vinegar and bacon. Pork and beans, too, are excellent heat-yielding foods. Left-over vegetables and meats, combined at the picnic, with a meat or cream base, make appetizing soup.

Baked potatoes are a stand-by and a prized eatable at all outdoor parties. For best results, the fire should be built directly above the potatoes. A slower, more involved way of baking potatoes is to dig a hollow in the ground near the fire, fill it with coals, and keep a strong heat in it for at least one-half hour. Then clean the hollow, drop in the potatoes, cover them with hot ground or ashes, and place glowing coals over this layer. Baking requires about 45 minutes, depending upon the size of the potatoes and the heat of the hollow.

To facilitate eating the potatoes, wrap them in paper napkins before cutting. This enables you to hold the halves comfortably while you cut and eat them. Salt, butter, and paprika make the potatoes taste better than expensive food at elite restaurants.

Among utensils suggested for a successful picnic are thermos bottles, thermos jars, collapsible pans, sharp knives, hand grate, spatula, can opener, matches, seasoning, waxed paper, paper plates, and branches or long handled forks for roasting hot dogs and marshmallows. Don't forget fire-making equipment.

If youngsters or human "hot house plants" are among the picnickers, the outing should be short. Nothing can spoil the adventurous spirit faster than becoming too cold, too wet, and too tired before reaching home.

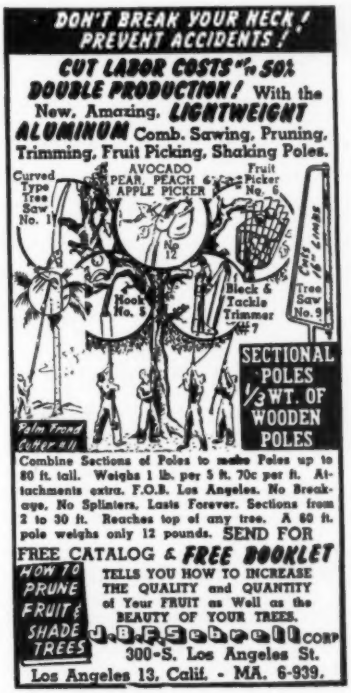
New AFA Officers

(*From page* 18)

board of Marathon Corporation last April, D. C. Everest was president and general manager of the same company. He is also a director in several other wood using industries, besides being active in the Masonite Corporation. He is a leader in Wisconsin civic affairs and in such organizations as the American Paper and Pulp Association and the Institute of Paper Chemistry. He helped get the Forest Products Laboratory established at Madison, Wisconsin, and has helped rally support for its growth ever since. In 1949 he was awarded an AFA Conservation Award.

George W. Dean, state forester of Virginia since 1944, is a Penn State graduate who started his forestry career with the federal Forest Service and went to Virginia in 1928.

Edward P. Stamm has been with Crown Zellerbach Corporation since 1926. Currently he is also vice-president of the Western Forestry and Conservation Association, chairman of the Forest Conservation Committee of Pacific Northwest Forest Industries, a board member of the Pacific Logging Congress and a member of the Keep Green Executive Committee.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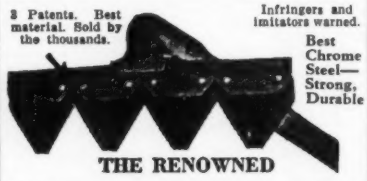

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The Long Recording Chronograph bulletin describes a precision instrument which measures and records on a chart the velocity of bullets in flight to an accuracy of one half of one percent. Theodore M. Long Engineering Specialties, 40 South Bridge Street, Somerville, New Jersey.

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Management of Natural Slash Pine Stands in the Flatwoods of South Georgia and North Florida — publication of the U. S. Department of Agriculture which brings together available knowledge regarding management of slash pine and is designed for use of timberland owners and managers in south Georgia and north Florida. Available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Price 20 cents.

Bonsai, Dwarf Trees

(*From page* 19)

seed into meal, put it in a bottle cap, and lay it on top of the soil to let the fumes come up into the boughs. The tree also lives on quite a lot of water which must be given with care."

No nitrate or ordinary fertilizer comes into the soil in the pot; for should the tree be put in fertile soil, it would immediately send down roots and start sprouting into an ordinary big tree of its species. There is no difference between the dwarf trees and their counterpart in ordinary trees except the soil conditions which have stunted the dwarfs throughout the years.

The Japanese have been practicing this art of bonsai for 150 years, and before them the Chinese developed the art from the beginning of the Buddhist reign. Before the last war Japanese experts yearly combed the American Rockies for these rare and valuable dwarfs that grow mainly in the high latitudes of the western North American continent.

Nelson, while up in the mountains hunting little known wildflowers, once came upon a Japanese scouting for dwarf trees. Through him he learned about the bonsai art, and later he went deeply into the subject at the Canadian nursery, where the Japanese train their trees for shipment to the Orient. As an agronomist and graduate of the University of Nebraska Agricultural School, with special soil training at Corvallis, Oregon, he was well equipped to pick up fast the Japanese ins and outs with dwarf trees.

Nelson says that dwarf trees may be developed from almost any specie of tree. The most beautiful and sturdy are from fir, hemlock, spruce, thuja, pine, juniper, or cryptamyra. The deciduous or loose leaf trees that drop their leaves every year, such as the oak, maple, pear, apple, or pepper trees, are quite short lived when dwarfed and therefore not worth the high cost of developing them. The beautiful little mountain trees are highly prized by large estate owners, city penthouse gardeners, and others who are willing to spend large sums for the unusual in gardens.

"My bonsai trees go throughout the world, England, France, and the New England States, and wherever highly cultured garden lovers have an artistic appreciation for these rare and valuable trees." Nelson held up one of the foot high, 300-year-old trees and stroked it lovingly as one would a beautiful and well kept child.

"I also have a six-year-old dwarf rosebush, the smallest primrose in the world, and other lovely dwraf plants developed through soil control," he continued. "Then there is the tree I shrank. It was 20 feet high, and now I have it down to three feet."

Yes, he has a complete, three-foot high tree, which he has shrunk by reversing the feeding process and giving it less and less to eat. The cells kept shrinking until the whole plant, over a period of years, had reduced to almost one seventh its original size, without in any way damaging the health of the tree.

It sems so easy when Nelson does it, but bonsai know-how is still a mystery even to the most skilled nurserymen and gardeners. So, from shows all over the country, Nelson keeps bringing back to San Diego, year after year, first, second and third prizes for the most beautiful and unusual dwarf trees ever exhibited.

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The American Forestry Association's Program for American Forestry proved a valuable guide recently for the North Carolina Forestry Council in preparing a long-range forestry program for the Tarheel State. The report, which was submitted at the request of the State Board of Conservation and Development of which AFA board member Walter Damtoft is vice-chairman, follows many of the basic recommendations in the AFA program.

Its 22 pages, in clear, concise statements, cover recommendations on fire control, education, assistance to landowners, consulting foresters, qualifications of state personnel, public control of forestry practices, planting and nurseries, insects and disease, research, forest surveys, taxation, credits, insurance and public ownership of forests. In short, it presents a blueprint for the development of all phases of federal, state and private forestry in North Carolina, and outlines ways to accomplish the objectives.

Perhaps of ever greater significance than the plan itself is the way it was developed. A group representing state government asked a body of men interested in all phases of forestry to recommend the steps necessary for an orderly development of a forestry program in North Carolina. The Council, headed by Dr. C. F. Korstian, dean of the School of Forestry at Duke University, included representatives from state and federal forest services, Southern Pine Association, Southern Pulpwood Conservation Association, Appalachian Hardwood Manufacturers Association, North Carolina Forestry Association, Extension Service, School of Forestry at North Carolina State College and the Southeastern Forest Experiment Station.

"We went through AFA's program point by point, using or rejecting its basic recommendations as we felt they applied to North Carolina," said Dr. Korstian. "It was a matter of give and take, and finally reaching an agreement. I feel we now have a program all interests can participate in and get squarely behind," he added. That the work of the Council was a success is attested to in its acceptance by the State Board of Conservation and Development at its October, 1950 meeting.

The American Forestry Association can take modest pride in the work of the North Carolina Council, for the efforts of this state group follow exactly point No. 8 of the AFA's program, which says: "Concerted action by appropriate groups, agencies and organizations in each state to bring about effective private, state and federal policies and programs of forest management and utilization."

The war-devastated College of Forestry of the University of the Philippines—only training school for foresters in that country—has received $146 worth of new reference and textbooks sent by American forestry students through the CARE-UNESCO Book Fund, in cooperation with The American Forestry Association.

Donors of the gift, comprising 29 of the latest and best American volumes on forestry and conservation, were the students of the College of Forestry, University of Washington, in Seattle, who contributed $111; the Forestry Club at Iowa State College of Agriculture and Mechanical Arts,

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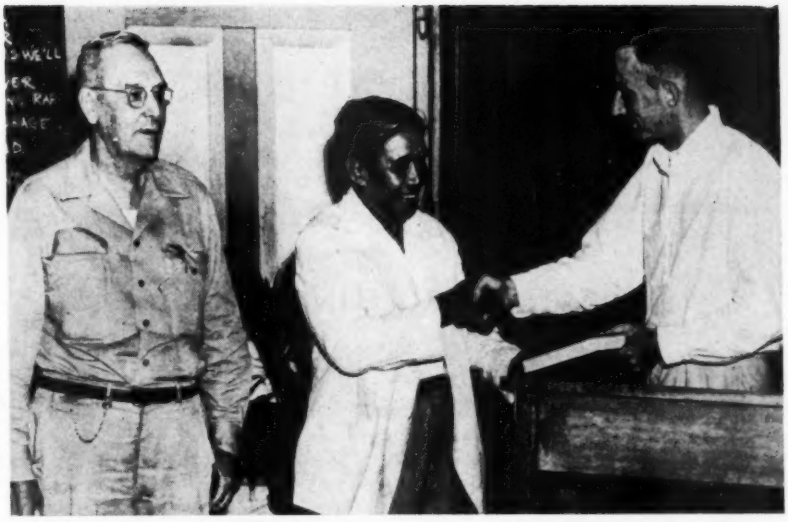
at Ames, $25, and Richard C. Helding, 1718 N. Major Street, Chicago, $10.

Deep appreciation of the gift was expressed by Professor Harold Cuzner, Forester-in-Charge at the Philippine College, during a presentation ceremony attended by the entire student body. "These are the books I might ordinarily have read about in next year's catalogues," Professor Cuzner said, "and, were the money available, we might have been able to order several of them for delivery in the following year. . . ."

Professor Cuzner, like the college with which he had been associated for nearly 30 years prior to 1941, was a war victim. Taken prisoner by Japanese troops who occupied the college buildings, he was released from Santo Tomas prison camp early in 1945 when American troops swept into Manila. And one of his first concerns was to learn how the College of Forestry, located at Los Banos, Province of Laguna, had fared.

Cuzner returned to find the school demolished. Only one building had escaped the consuming flames—a single lecture hall. The library and all of its books, accumulated over a period of 35 years, was completely destroyed.

In the five years since liberation, the Philippine institution has managed to acquire some 1,600 books, Roger Wilson, CARE mission chief in the Philippines who made the recent presentation on behalf of the donors, reported. Other forestry schools which have cooperated with



Roger H. Wilson of CARE (right) presenting a new American book to Dean Florencio Tamesis, U. of Philippines. Professor Harold Cuzner looks on

The American Forestry Association in the CARE book program include: Alabama Polytechnic Institute, University of California, West Virginia University, University of Michigan, University of Missouri, University of Oregon, University of Minnesota, and Michigan Academy of Science, forestry section.

Book donations have been made to Norges Landbruckshogskole Biblioteket, in Norway; Justees Liebig College of Agriculture and Veterinary Science in Germany; Institute Superior Agronomique de L'Etat, Belgium; National School of Agriculture and Forestry, Austria. The forestry school of the National University of Korea was scheduled to receive a shipment of books, but these are being held in view of the present war.

Dr. M. D. Mobley, who as former state director of Vocational Education in Georgia received an AFA Conservation Award at our annual meeting in 1949, has been named executive secretary of the American Vocational Association. He succeeds Dr. L. H. Dennis of Chevy Chase, Maryland, who had served the Association since 1934.

S. L. F.

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Editorial

EDUCATION'S ROLE IN RESOURCE USE

By PAUL B. SEARS

Conservation of natural resources means the kind of relationship that will insure man's wise and continuing use of those resources. So when we speak of education to further their wise use, we must have a basic yet broad concept of usefulness. To accomplish this, we need to be as clear as we can about education, which in the last analysis is always regarded as the standard bearer of those who wish to better society.

In terms of social structure, education is and always has been an instrument of the existing culture, whatever that may be. Its prime function is to prepare the young to be effective and satisfactory members of the society which underwrites their education. It follows that we cannot be clear about education if we are in doubt about the character of our own society.

Just now we are in danger of being thrown off center, even being put on the moral defensive, by a society which professes to have a more just, more enlightened concept of property in relation to human rights than we. Actually, the phrase "property rights versus human rights" is in itself a trick. Anyone whose knowledge of history goes back to the red-coats of George III knows that the rights of the individual, including his right to own property, have been hard won. If we are to be criticized, it is not for the direction our economic and political history has taken, but because we have failed to push our own type of revolution to its logical conclusion.

It is this great Anglo-Saxon revolution, not the Russo-Marxist one, which is the true wave of the future. The Russian crusade is a backwash of the darkest past, dressed up a bit by a surface flotsam of science and modernity. We even have a more efficient brand of socialism—if you wish to call it that—than the advocates of social ownership can ever envision. We have retained the stimulus of free private enterprise and the antiseptic effects of competition, while government stands ready to take over from 20 to 95 percent of the profits from this activity. Not even Uncle Joe has a cow that gives such milk or gives it half so contentedly!

The only objection is that these funds, designed to be used for the common good, are not always handled with the same effectiveness that would be demanded in a good business organization. This point scarcely needs to be elaborated upon, except to say the remedy is in our own hands.

What we do have then is a social order which, while not perfect, is good, and worth preserving. It is particularly good because we have the right and means to change it as we see fit. It is not static, but dynamic and growing. And because it is built on the idea of respect for property as an element in human dignity we already have most of the legal and moral machinery needed to make conservation effective. Only recently counsel assigned from the Attorney General's office reminded the Ohio Wildlife Commission that control of stream pollution was not nearly so much a matter of new and stringent legislation as of intelligent use of laws already in existence.

Everything considered, if we simply carry on with the idea that education should be an instrument of our society for its own preservation and growth, we ought to do pretty well—provided we are clear about the nature of that society.

Conservation is fundamentally an ethical problem, resting upon faith in the universal operation of scientific laws and upon respect for the importance of the human individual. It is also an aesthetic problem, requiring sound and harmonious design of our activities and the setting in which we can carry on. It is, I believe, quite generally true that an ugly landscape is a diseased one, and that an effective landscape is satisfying to the eye.

But our ethical and aesthetic judgments must be sustained by rigorous intellectual inquiry. There is need at present of a formulation and testing of those principles which govern our relationship to environment. Ecologists know intuitively that great laws of physical science extend their operation into the living community, but continuous and severe scientific testing of this assumption is necessary before we can expect the public to respect ecological principles as they respect laws of physics and chemistry.

Finally, great operational skill and wisdom is required in educating both the public and its servants. The standards of general scientific literacy need to be raised. Adequate science teaching must begin at elementary levels. At higher levels the various sciences need to be even more knit together than they are at present. And professional workers in conservation must have not only a mastery of technique, but broad awareness and perspective.

The ends we have in mind are not to be reached simply by laws and devices — but by men and women who exemplify the principles of conservation.

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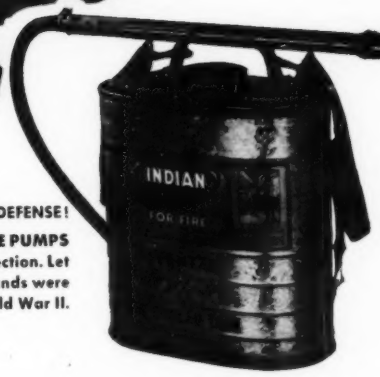
(Answer Below)

ANSWER: 119 persons perished in this fire which occured at a dock in Toronto, Sept. 17, 1949.



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